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**RESUME**

**MARKETING ASPECTS OF RICE IN DEVELOPING COUNTRIES** ✓

by

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1. During recent years, marketing of rice has assumed new dimensions and posed fresh problems, which have to be studied in the light of the following:

(1) the introduction of high yielding varieties which have enabled many of the former deficit countries to become self-sufficient and to even become exporters;

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(1) changing patterns of ownership and management of land, with collective farming in some countries, and increasing number of small holdings in others; (2) poor response to family planning and increasing pressure of population on land in many of the fast-growing countries; (3) increasing role of governments and cooperatives as large producers and distributors, with rationing and price control depending on the needs of the regime; (4) greater realization of the periodicity in the strength of monsoons and the need to build up buffer stocks in many countries; and (5) advances in the sowing and particularly parboiling of rice, introduction of modern milling and better utilization of by-products. Added to these, there is increasing production of wet-season paddy in some areas with attendant problems in preservation and marketing. There is also growing agrarian unrest with demands for higher wages and larger return from the produce.

2. The world market is chiefly in the form of well polished raw rice, while internal markets are in the form of paddy and somewhat under-polished raw or parboiled rice. There are advantages in procuring and storing shelled (brown) rice as followed in Japan, if similar methods of preservation can be adopted. There is considerable variation in world market prices depending on variety and quality, while internal prices generally move within a narrow range excepting for special quality (e.g. Basmati of India and Pakistan). Irrespective of political ideologies, all governmental policies aim at maximising production with adequate incentives to the producers. Among them, special mention should be made of the procedure followed in Japan and the Republic of Korea, with payment of advance towards the produce and bonus for prompt delivery. The Japanese system of large scale storage and release to millers, with control over retail prices, is also worthy of adoption. Other countries provide assistance towards purchase of fertilisers and service through tractor ploughing and plant protection. The Burmese method of supplying certified seed paddy deserves to be copied. Many of the countries have set up governmental procuring agencies, with minimum guaranteed price to the producer; but, in countries like India, the enormity of the problem, with large requirement of outlay, is still in the way of larger control with further incentives to the producers. Rural indebtedness at high rates of interest and distress selling for meeting cash needs also continue to be serious handicaps; and while benefitting small sections of people, such conditions have an adverse effect on the maintenance of yield in many of the countries.

3. Quality standards in respect of paddy and rice are becoming greater importance in many countries. There are prospects for higher quality and larger amount of foreign matter in the case of paddy and higher moisture, greater percentage broken, discoloured and under-polished grains and foreign matter for rice. This has assumed special significance in relation to paddy and rice produced during the wet season. In many countries, there is a strong provision to pay a premium or provide other incentive for quantities which are superior to the prescribed standard; but, there is such a restriction in the export market. This will require very early attention, as, otherwise, there will be diminishing returns in producing superior qualities for both national and international markets. While parboiled rice may not have a world market, there is scope to apply the same principles to improve the milling quality and to get better returns from soft varieties.

4. While there is strict government control over imports and also general control over internal procurement and prices in most countries, the actual extent of such control in relation to private marketing varies with the actual needs of the countries and the importance of the crop in national economy. While fair price shops and general rationing are not, at present, such in vogue in many countries, there is, nevertheless, a general realization that years of shortage may soon follow and that the interests of the consumer should be protected. Many countries are maintaining large buffer stocks which can be moved, at short notice, to deficit areas. There are nevertheless disparities in regional and seasonal prices; but these can be minimized only by eliminating zonal barriers and also by maintenance of large national stocks as is done in Japan. There has not lately been much interest in the maintenance of International buffer stocks; so, most countries will have to solve their own problems and, where necessary, by bi-lateral agreements.

5. Though the present position in many countries is quite favourable, the future should be considered in the light of adverse factors and, particularly the poor response to family planning in many of the countries, and also the periodical failure of monsoons. There is need to further intensify the production by providing more incentives to the producers and maintaining large buffer stocks with proper scientific control: (1) There should be minimisation of rural indebtedness, by provision of advance to producers partly as cash and partly through assistance in regard to tractor ploughing, supply of seed and fertilisers and pest control. Crop insurance should also be provided. (2) There should eventually be procurement of the entire crop by the state and organisations acting on its behalf. There should

be an initial payment under bonds cited above and a final payment when the crop is delivered. There should be strict quality control, with penalties for sub-standard products and premia for quality which is superior to the prescribed standard.

(3) Storage should be taken over as a responsibility of the state with provision of well ventilated godowns or silos and proper pest control. (4) Paddy should be released in convenient instalments for processing and milling by accredited agents. In doing so, preference should be given to organizations adopting hygienic methods with modern milling machinery that would ensure the maximum yield of marketable grain, together with by-products which could be utilized in the best possible manner. (5) The rice should be released by the government to licensed wholesalers who will have to distribute it to the retailers with a pre-determined margin of profit. The prices payable by the consumers should be displayed by the retailers. (6) The above arrangements will ultimately result in some margin of profit to the Government. At least 50 per cent of this should be paid as bonus to the producers, while about half the balance should be utilized towards maintenance of scientific research and also development of industries based on rice and its by-products. Even a small beginning along some of these lines will lead to early, demonstrable benefit and minimise the possible future hazards to many of the countries.



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ESSENTIAL ASPECTS OF RICE IN DEVELOPING COUNTRIES 1/

by

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1. During the past few decades, several authorities, representing national as well as international organisations, have studied the problems relating to the marketing of rice in different parts of the world and made their recommendations. Their reports, which are very valuable, naturally relate to the conditions which then existed. With the rapidly changing political, socio-economic and production patterns and also the trends in regard to future development, there is need for fresh thinking and a bold approach, which will ensure maximum production, while, at the same time, reconciling the apparently divergent interests of the producer, the processor and miller, the wholesale and retail trade and, more than anything else, that of the consumer.

2. There is hardly any need to emphasise the importance of rice as the foremost foodgrain of the world and its place as the staple food for more than half the population. Its special significance to Asia and the Far East, which is responsible for 90% of the world's production, is also well known. What is more striking is its dominant influence on national policies and programmes and also on the outlook and ideologies of the common man, far more than any other commodity in the world.

#### 1. RELATION TO OTHER FOOD GRAINS AND PER CAPITA CONSUMPTION

3. In any assessment of market potentialities, an important consideration will be that of the existing and also future trends in regard to consumption patterns and also the possibility of any early or even distant change in the per capita consumption. While this is always linked with the availability at a fair price, we have to be largely guided by the consumer preference under normal conditions with adequate purchasing power. There is also ample historical evidence to show that even in times of emergency - such as those caused by war, famine, floods or other natural calamities, as also acute poverty, - the traditional consumers of rice accepted other foodgrains and tubers only as a temporary measure. There have been major efforts, both as national policies and also through the active interest of nutritionists and agencies concerned with popularisation of other foodgrains like wheat, corn and soya-bean to at least partially replace rice in the diet of people in many countries. These efforts have met with moderate success in certain areas; but, in most others, there has been a general resistance to any major change, and especially in areas where rice has long been the only staple grain consumed by the people. There is admittedly considerable adaptability

to changes of diet, with even complete exclusion of rice, for several years but even these people revert to rice when they can return to the original conditions. In some areas, there is a tendency for traditional millet consumers to change over to rice when economic conditions permit. In an area like the Kerala State of South India and also in the neighbouring regions large sections of people who were originally rice eaters have found it necessary, and even developed a taste for a tuber-crop like tapioca (cassava). Even these people do increase their consumption of rice when economic and other conditions become favourable.

4. Even as a staple food, the per capita consumption of rice varies with different countries. In many of the Far Eastern countries for instance, where strict vegetarianism is practically unknown, the per capita consumption of rice does not exceed 5-6 ounces (140-170 grams). In India, on the other hand, the per capita consumption is as high as 14 ounces (397 grams), with individual adult intakes being as high as 20-25 ounces (568-710 grams) in many areas.

5. Taken on the whole, it may be reasonably assumed that, during next years, the pattern of consumption in relation to rice will remain more or less the same and the total requirements will vary according to trends in population growth.

### III. TASTE PREFERENCES - Raw vs Parboiled (boiled) Rice

6. The major part of the world's production and trade is in raw rice. In most of the Far Eastern countries, the preference is for varieties which are fairly hard for milling, but cook to a somewhat sticky or glutinous condition so as to fit in with the dietary pattern and eating habits (e.g. with chop sticks) of the people. In many parts of Europe and America where rice forms only a very small and occasional part of the diet, the requirement of hard or soft varieties will depend on the type of preparations for which they are required. In countries like India, however, there is quite a perceptible change from raw to parboiled rice, not only by preference, but also as influenced by better milling performance.

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<sup>1</sup> Throughout this paper, the term Wied is intended to represent the most popular marketed form, which is the polished kernel, irrespective of the degree of polishing, which may vary from 3 to 5 per cent or more. Unhulled or brown rice is cited by the full name. The whole grain, with the hull, is cited as paddy.

and higher price of marketable goods than would be paid for the same goods in the  
new conditions. There is also a possibility that the price of the goods is  
probably changing from the world market price to the price of the market produced  
for export in order to the best possible advantage of the country producing the goods and  
which is acceptable to the other party to the transaction.

It is the world market that is largely a market of goods from the various  
countries and regions which are necessary for the production of the goods and  
change in favor of particular countries and which is not to be taken into account  
only prepared for export products. The net result of the world market is  
in favor of the latter.

### (II) POPULATION GROWTH IN THE WORLD

It is important and highly significant that the world's population is reported to  
be composed of the same nations and continents as in the past, at least in the  
growing regions of the East. There is an increase in population in all of the  
continent of Asia, in the western part of Africa, in the southern part of the continent  
in many areas. The increase in population is combined with the increase in the number of  
nations, especially the big nations of many nations, and the increase of large  
cities. This increase in population and the increase in the number of nations is  
undoubtedly an important world history factor. It is not only a factor which is  
permitted by the growth of nations, reported in the past, and not from anything  
else, but a part of the world's growing population, combined with greatly reduced  
infant mortality in many of the countries, is leading to an increase in the rate of  
increase in population, especially in the many areas. The annual increase is  
as high as 4.0 - 4.5 per cent in some regions and it is nearly twice that 2.0 - 2.5  
per cent in many others. A few countries have had fairly successful in controlling  
the rate of the increase, while in most others, the growth effect of population  
control is not pronounced. In India, for instance, the present population is  
over 750 millions; and the annual increase is at the rate of about 1.5 millions,  
a large part of this increase occurring in the growing areas. In the new  
growing district of the new South India, for instance, it is a common feature,  
in most rural areas, to have childbearing rates of 12 - 15 children and young parents  
with eight to ten children are not uncommon. Such a trend is an obvious  
is similar to the Philippines. The point is also apparent to be the case in  
China (mainland) which already has the largest population in the world.

8. The world's production of rice has already reached a record figure of over 100 million metric tons, an all-time high. With the present trends in the growth of population, even any possible further increase may prove inadequate to meet the needs of the population. The areas which are presently surplus in regard to rice may become deficient after some time. This is an alarming feature to which many authorities have already drawn attention. It will also have a profound bearing on the direction of movement and marketing of rice in the years to come.

**9. INDIA'S POSITION IN REGARD TO THE SUPPLY OF RICE IN SOUTH ASIA**

10. Till about 1955, the position in regard to the supply of rice in South Asia (India and Pakistan) was increasingly deteriorating and there was even reason to fear that even the limited surplus in other parts of the world would not suffice to meet the rapidly growing requirements. Thanks, however, to the intensive agricultural development programme introduced in India and other countries, and also the introduction of new high yielding varieties, especially IR-8, the nightmare of an immediate rice shortage is fast receding. Some countries like Japan, China (mainland) and the U.S.S.R. have attained self-sufficiency and even reached the stage of becoming exporters. India is also, presently, fast approaching that condition. Better rice milling, combined with parboiling has also helped to increase the yield of carbohydate rice.

11. The above situation has undoubtedly changed the market position in many parts of the world, but the situation should, nevertheless, be regarded as being unstable. Sooner or later, the demand of the growing population will outstrip even the maximum capacity for production in many countries. This will also have a profound bearing on the world markets and also internal trading in these many countries.

**10. WORLD'S RICE PRODUCTION AND EXPORTS**

12. Most of the world's rice production comes from countries which depend on commerce for their livelihood, such, for instance, as the rate and volume of flow in storage storage in warehouses, bullocks and hands, etc. The volume of water available for

✓ Data approximate figures for production in some countries are not available.

irrigation is entirely determined by the strength of the monsoons. Even the availability of sub-surface water for pumping is determined by them. Meteorological data collected over some decades have shown that there is a periodicity in the strength of the monsoons. Typhoons and cyclones are unpredictable in respect of their speed and direction and also the extent of devastation which they can cause. Even in normal years, unseasonal rainfall has been known to cause heavy losses of rice crop in many areas. In a country like India, the monsoon becomes weak about once every ten years and, except in a few regions like Kerala and Assam, weak monsoons affect all agricultural production and particularly that of rice. None of the high yielding varieties or inputs of fertilizers can produce any good response unless there is an adequate supply of water.

13. Countries which are chiefly dependent on the production and consumption of rice as a staple diet are therefore faced with the dual threat of (1) increasing demand which may eventually be difficult to satisfy and (2) periodical crop failures or at any rate, greatly reduced yields which may suddenly precipitate a rice crisis which may take various undesirable forms. Countries like India which have large populations and productions which are marginal would be particularly vulnerable in such a condition. Within the past twenty years, India had to face two such crises, once in 1952-53 and again in 1965-66. On both the occasions, even rice eating areas had to depend chiefly on imported wheat to supplement their grain requirements. If that country is to be prepared for the next spell of weak monsoon, which may follow in a few years, to meet the actual requirements, there will have to be a buffer stock of at least 5 to 7 million metric tons of rice (as equivalent paddy) built up in the course of the next few years. Methods for the bulk storage of such large quantities of paddy without deterioration of quality, will also have to be evolved.

14. Typhoons, cyclones and floods have been some of the major disasters affecting large areas in many of the countries. Another misfortune which has been afflicting many of the countries is the calamity of wars, clash of political ideologies and general insecurity and unrest which have been seriously affecting production and thus creating rice shortages in areas which are otherwise self-sufficient and, in some cases, even have exportable surplus.

## VI. MARKETABLE FORMS OF RICE AND BY-PRODUCTS

15. The bulk of the world trade has been in the form of polished raw or parboiled rice. There is only a limited international market for paddy or brown rice. Well polished rice (to the extent of 8 per cent or more) is generally preferred in many countries because of its satisfactory keeping quality. Very few countries like to import paddy chiefly because of the bulk and extra weight; but a few countries, like Canada, import paddy chiefly because of the facilities for storage and processing in the desired manner.

16. Internal marketing in most of the developing countries is chiefly in the form of paddy, for milling and storage, and as polished rice (raw or parboiled) for wholesale and retail marketing. The methods of storage in many countries leave much to be desired, but discussion of that aspect would be outside the purview of this paper. In some of the countries of the Far East and, especially in Japan, marketing is chiefly in the form of brown rice. This would be of great advantage if there were proper methods of packing, protection and storage. This will, of course, involve drying and shelling on the farm itself, which facility is not yet available in many countries.

17. The available data for the past few decades would show that international trade in rice which was once as high as 10 million metric tons has lately come down and has not exceeded 5.0 million metric tons for several years. The bulk of the trade has been within the countries themselves.

18. Bran is the only by-product in which there has been a highly fluctuating export trade. At one time, the bulk of the export from countries like Burma was without any extraction of oil. During recent years, the export trade has been exclusively in the form of deoiled bran, conforming to the prescribed standards for protein and acid insoluble ash content.

## VII. FLUCTUATIONS IN NATIONAL AS WELL AS WORLD MARKET PRICES

19. Study of the available data for the past few decades would show that national as well as international prices have shown wide fluctuations, depending on seasonal conditions, available margins for sale and also pressure of demand. The internal market prices in some countries depend on the general cost of living and other factors; as also on the quality and packing. In some countries there may be insistence on

getting 95 to 100 per cent head rice from a high class variety in attractive packing, while others may be prepared to accept mostly coarse varieties, with even 50 per cent brokens, in any cheap packing. As a result of this, the internal prices in different countries vary from the equivalent of about 6 U.S. cents per kilogram to 55 cents per kilogram. Even within the same country there may be wide variations in local prices because of difference in availability and also restrictions on movement. Thus, in India, the retail prices in two neighbouring states may vary by even 100 per cent. The international prices are determined by the margin available for export, seasonal conditions in different parts of the world, the size of demand from various countries, the currency of payment or other types of deals that may be entered into. If reckoned on open market deals and in the same currency, general world prices have risen or fallen by as much as 35 per cent in successive years. Independent of these, the prices are also determined by long-term agreements, e.g. as between Guiana and some of the Caribbean Islands; or as between India and Burma; or the barter arrangement as between Ceylon and China (mainland) in terms of the supply of rice required by one country and rubber required by the other.

#### VIII. CHANGING POLITICAL AND SOCIO-ECONOMIC TRENDS AND THEIR INFLUENCE ON THE MARKETING OF RICE

20. Until about the forties, production, processing and hand-pounding of rice was the most important industry of many of the developing countries and provided employment, wholtime or partial, for over 80 per cent of the adult population (of both sexes) living in those regions. The wages were largely in kind, but there was plenty of food for the entire families, with even something to spare; and the people were generally content and happy. Purchase of paddy and rice and also their marketing in urban and other areas were in the hands of other different classes of people, including commission agents, as also wholesale and retail merchants and this constituted the most important line of business, with the largest turn-over for the countries. In countries which had surplus production, export trade in rice was the most important source of national income. This is even now the case for a country like Burma.

21. The rapid growth of population, combined with the introduction of rice mills, resulted in a steady increase in unemployment. There was also an increase in rural indebtedness without adequate means of repayment of the capital and the high rates of interest that were being charged. A considerable part of the mortgaged

lands were purchased by the more prosperous businessmen and other professionals in urban areas who became absentee landlords under whom the former owners were often obliged to serve as tenants. Added to this, there was also the spread of education and attractions for the various amenities and also for some of the weaknesses of the more sophisticated urban life. This has inevitably resulted in growing discontent and an increasing measure of agitation against large holdings and absentee landlords. There was also the realization that the producer in many areas got only 50 to 60 per cent of the marketed value of the produce, while the merchants and other intermediaries benefited by the differences. Added to these, leftist political ideologies have been fast gaining ground in the rural areas of many countries; and they have led to various types of organized moves, from peaceful attempts to violence and bloodshed.

22. The governments of different countries follow different ideologies ranging from benevolent autocracy to totalitarian socialism. Most of the countries do, however, follow some form of democracy with an electoral system in which the rural population, who are in the majority, have a strong voice. In many countries there is a ceiling on land holdings and various measures have also been introduced both for ensuring a fair price to the producer and also an equitable price to be paid by the consumer. Many of the measures are still inadequate and leave scope for abuse of one kind or another. Even within the same country, there are restrictions on movement of paddy or rice. Prices remain low in some areas of large production and there are also procurement policies which do provide adequate incentives for more production. In others, the prices continue to remain high and periodical shortages also arise, giving scope for exploitation on the one hand and distrust and agitation on the other.

23. Notwithstanding the ideologies that determine government policies, there is a common desire in all countries to introduce market policies and programmes that will maximise production to ensure self-sufficiency and even to build up an export market where feasible; to provide adequate incentives for the producer, while, at the same time, ensuring a steady supply at a fair price to the consumer. An analysis of the policies followed by the different governments and also the resulting benefits will help to arrive at workable methods of approach which will help to meet the objectives set out in an earlier part of this paper.



IX. GOVERNMENT POLICIES

Burma

24. Production and marketing of rice is considered very important because about 25 per cent of national income and 60 per cent of export trade is through rice. The Union of Burma Agricultural Marketing Board (UBAMB) is the sole purchaser from the producer, at prices depending on quality, and negotiates inter-governmental contracts. There are about 1,350 purchasing centres and the prices offered for some qualities are identical in all parts of the country. Exports to private dealers in other countries are handled by Myama Export, Import Corporation. The farmers are also assisted by loans at low rates of interest. They are also helped on a large scale with supply of good seed, which is a highly desirable and progressive measure.

Khmer Republic

25. This being a surplus producer, there is free market for rice and there is practically no state interference. The National Development Fund helps farmers with loans and the Agricultural Product Collecting Agency helps in procurement. The National Export and Import Society attends to external trade.

Ceylon

26. Though about 50 per cent of the total requirement has to be imported (presently from China (mainland)), the internal prices are maintained at a steady low level for purposes of rationing. There is price support for local production at a guaranteed rate equivalent to about U.S.\$ 120 per metric ton. Subsidy for internal production and also subsidy for selling imported rice at a reduced price to the consumer involve heavy costs (about U.S.\$ 400 million per annum).

China (Taiwan)

27. The Food Bureau of the Food Administration collects about 25 per cent of the total production as paddy. The farmer pays his rural land tax as paddy and also gets his fertilizer in exchange for the grain. There is also compulsory procurement. There is rationing to low-income groups in the form of husked rice.

Hong Kong

28. The area under rice is declining, but the colony is prosperous and imports about 400,000 metric tons through registered importers. There is control over stocks and substantial reserves are maintained.

### India

29. Next to China (mainland), India is the world's second largest producer, with present annual production of over 45 million metric tons of rice. The production has been fluctuating with the strength of monsoons and may get reduced by even 4 - 5 million metric tons in a bad year. Some states like Andhra, Orissa and Madhya Pradesh are surplus producers, while some others are marginal and some deficient. The Government has divided the country into zones for foodgrains and procurement is done by the different state governments (with compulsory levy in some areas), by the Food Corporation and different co-operatives. Anything above the prescribed limit can be procured by merchants but there are restrictions on movement outside any state. An Agricultural Prices Commission fixes the national prices, but state governments also fix their rates for procurement and price support. Importation into the country is a state monopoly through the Food Corporation. Superior varieties like Basmati are exported to a limited extent. There is a national policy for maintaining buffer stocks. The Intensive Agricultural Development Programme is helping to increase production in areas where irrigation and other facilities are assured. Fertilizer production, in the public as well as private sector, is fast increasing. Farmers are assisted through supply of fertilizers, seeds, tractor ploughing and pest control by aerial sprays on payment. The Central Warehousing Corporation helps to store paddy and rice from farmers and merchants on reasonable terms. The Agricultural Marketing Organization, through the Agmark Scheme, is helping by certifying quality for internal market as also for export.

30. In spite of all the organizations and facilities, the country is still in a vulnerable position because only about a third of the total area of over 80 million acres under rice gets the facility of irrigation while the rest are dependent on seasonal rains. Even the irrigation facility for single or double cropping will depend on the strength of the monsoons and the availability of sub-soil water. There are also other problems which have already been referred to.

### Japan

31. This may not come in the class of developing countries, but the government policies are worthy of serious study because the country has rapidly changed from the position of a major importer to one of sufficiency while at the same time, reducing the area under the crop. The government procures chiefly husked rice, through the Rice Advance Sales Promotion Council, and the prices offered are higher

than world prices ranging from the equivalent of U.S.\$ 185 for coarse to over U.S.\$ 300 per metric ton for superior varieties. Out of this, 25 per cent is paid as advance to the farmers, who get full payment on delivery. There is also the tax reduction if delivery is made according to schedule. The government has provided storage capacity (partly with cooling facilities) for about 10 million metric tons of husked rice. The milling is done in large modern units which also provide high quality bran for extraction of oil. The government sells the milled rice to registered dealers who have to retail the product at controlled rates.

#### Republic of Korea

32. This country is keeping to its target of 3.30 million metric tons of husked rice in 1971. The prices are somewhat lower than in Japan, but the farmers get cash advance equivalent to over 75 per cent of the procurement price and also subsidy of cotton cloth (3.6 yards) for every lot of 54 kg. of paddy.

#### Malaysia

33. This is another prosperous country, which has, till now, been a larger importer; but the Muda River project is expected to raise the production to over a million metric tons which will meet about 85 per cent of the grain requirement. There is freedom for import by traders who have also to buy a part of the reserve stock from the government. The people have adequate purchasing power and there is no rationing or other control.

#### Nepal

34. This country is producing sufficient rice for its needs in the Terai region; but the transport to the colder regions is proving expensive. There are restrictions on export.

#### Philippines

35. There is a crash programme for rice production which has already been effective in converting a deficiency of about 500,000 metric tons per annum to one of self sufficiency, and even a small exportable surplus. The Rice and Corn Administration subsidizes internal production and, at the same time, provides rice to consumers at a reduced price.

### Pakistan

36. The main rice producing and consuming area is the Eastern region which has also the highest density of population. The total planned production for the whole country is about 14 million which, if attained, may help to reduce the imports which now amount to about 500,000 metric tons per annum. The local consumption is largely in the form of coarse varieties (parboiled). The government is the sole importer of rice. There is also monopoly procurement of the superior Basmati rice for the export of which a special Board has been set up. There is subsidy on fertilizers.

### Thailand

37. This country has always been in a surplus position and the policy of the government, through the Ministry of Economic Affairs (Internal Trade Development), has been to encourage more production to reach an export target of 1.5 million metric tons. There is price support for internal production and the Public Warehouse Organisation guarantees minimum floor price to the producer. Only modern rice mills are encouraged. Exports are negotiated by the Government, but the actual handling is in private hands. There is a premium on exports, which can be only in the form of rice. Export of paddy and bran are prohibited.

### Republic of Vietnam

38. This country is a potential exporter and can emerge as one when peaceful conditions are restored. The present policies are primarily intended to stabilise prices and to maintain reserve stocks of about 300,000 metric tons a year.

### Other Asian Countries

39. The policies and programmes of China (mainland), the world's largest producer, would be of interest and value; but they are not available. There were periodical reports about crop failure during earlier periods, but the country is now perhaps the largest exporter, the bulk of the surplus being sold to other countries with centrally planned economies as well as to Ceylon.

40. Most of the other Asian countries are small producers and their consumption of rice is also low. Among these, Turkey is the largest producer and it has free trade in rice.

#### Africa Countries

41. Most of these are small producers. Some like Ghana, Kenya and Nigeria are still deficient and have to depend on imports. The prices in Congo are among the lowest in the world, while those in other countries are well above the world prices. Madagascar is the only large producer and exporter, and the superior variety Vary Lava fetches a high price on the world market. The United Arab Republic is now emerging as a large producer and has periodical surpluses for export.

#### European Countries

42. Most of these are either small producers or importers. Italy is the only country with an exportable surplus and much of the latter goes in the form of quality products to the European Common Market. The National Rice Board guarantees the price to the producer.

#### North America

43. The United States is the largest producer of rice in this region with an annual production of about 3.0 million metric tons. Of this, only a small part is utilised within the country for production of quality products, processed preparations and for brewing. There is a guaranteed off-take and the bulk of the produce is exported for sale or even as gift to other countries. There is a subsidy for export and donations are supported by meeting the processing and other costs.

#### Central and South America

44. With the exception of Brazil and Guiana, most of these are small producers and consumers. There are not many special privileges or incentives; but the internal prices are generally higher than in the Asian countries and that may itself be sufficient incentive for both the producer and the marketer.

#### Australia

45. The production is chiefly for export. The Rice Marketing Board is the sole purchaser and makes advance payment to the producers. There is also bounty on fertilisers used. There are, however, no farm price schemes or guaranteed prices.

46. The greatest urge and necessity for more production, with incentives of various types, and also the maintenance of fairly low prices for internal consumption, is more in the countries of Asia and the Far East which are not only the chief producers

but also the largest consumers of rice. The success of the policies would be measurable by the ultimate results. Some countries have already attained or, at any rate, are fast approaching, their targets, while the position in the others is more difficult or uncertain. There is need for some reorientation of the policies and bolder measures for stimulating more production and, at the same time, protecting the interests of the consumers.

## I. PROCUREMENT AND PRICE SUPPORT

47. These two aspects are closely inter-linked and they may well be considered in relation to the actual conditions prevailing in different countries and also the policies and programmes of governments.

48. It has been generally recognised that most of the countries where rice is a major crop and the staple food of a large section of the people, have to adopt some method of procurement, either through requisition, with adequate incentives, or by way of levy with payment, so as to maintain adequate buffer stocks and to ensure adequate supply at fair prices to the consumers. There have, in the past, been tragic instances like the Bengal famine of 1943 when absence of adequate buffer stocks or price control and failure to ensure quick movement and distribution of rice at fair prices led to the death of over a million people. No country would like to have a repetition of such tragedies. At the same time, it has also to be recognised that, at any rate, a great majority of the individuals participating in a programme of production and distribution would first like to take care of their personal interests and of their families before considering those of others; that the spirit of sacrifice is a rare phenomenon and that generosity in most people springs only from a background of security and plenty.

49. It is well known that, in many countries, the producer is generally inclined to under-estimate his yield - unless there is a price or other inducement - so as to minimise the liability for taxation or levy and to have sufficient undivided margin for his own needs or even private sales. National sample surveys, with crop cutting trials, will help to give some idea of the possible production in a region; but the individual production need not always conform to it. In a good season, the producer will like to part with his surplus crop to the government or cooperative or any other buying agency only if the prices are favourable. In any

not, however, be able to hold back until the crop price has fallen to an adequate  
level to fall back upon. In many countries, the only alternative of the  
producers are able to do this and to make a profit or break even during the off season.

## II. FINANCIAL STRAIN AND RURAL BANKING

50. In actual practice, a great majority of the producers are obliged to sell their  
crop quickly either for meeting the urgent needs for making the next crop or for  
meeting a variety of domestic and other private commitments. As a result, selling for  
even lower prices than the prevailing market value is often found by the government  
to fairly common in countries like India. There are also private commitments of the  
producers to money lenders who would have advanced money with an option in the crop  
at special low prices. The fact is that the money lender would leave the producer  
with no cash and necessities for the next crop. Some sections of farmers may be  
extricating themselves but quite a large percentage of them are obliged to borrow  
money for their children's education and such other commitments. In many regions, the  
prevailing rates of interest are very high, ranging from 24 to 36 per cent or more  
per annum and the interest is deducted in advance before lending the money. In addition  
to this, the money lender also takes over the harvested crop. This condition leads  
to a state of perpetual indebtedness and the farmer is often obliged to reduce his  
inputs on the land which, in turn, reduces his subsequent earnings from the crop.  
The hazards arising from rural indebtedness are minimized only in countries where  
the state makes a free provision of seed, fertilizer and plant protection and/or  
otherwise helps the farmer with an advance payment towards his crop, with immediate  
balance of payment when the crop is harvested at a government depot or warehouse.

## III. FINANCIAL STRAIN AND RURAL BANKING

51. The above will apply largely to crop harvested during the dry season when the  
marketed produce is already at a low level of moisture and in a condition for storage.  
In many of the regions where adequate canal water supply and irrigation works are  
available for at least 6 - 9 months in the year, there is always double or even  
triple cropping; and one of these representing 25 to 30 per cent of the total  
production in any area comes to harvest right in the midst of the rainy season.





available for some months. Price support alone has not brought any appreciable measure of prosperity to the rural areas. In most of the rice growing regions, production of the grain is the only major occupation and there are long periods of idleness especially when there is no crop on the field. There should be other occupations and subsidiary industries based on either the by-products of rice milling or other crops of the region so that the people will have some additional means of livelihood or other means of supplementing their income from land. In many of the rice growing areas and particularly in countries like India, the pressure of population on land is fast increasing and the per capita income from the production of the grain is steadily diminishing. Lack of alternative or additional employment is the main cause of the trouble and this has led to a great deal of discontent and unrest which is having repercussions even on rice intensive and economic production of rice itself. Development of small or large subsidiary industries, starting with those based on rice and its by-products, if necessary with labour intensive operations, should be fast developed in such areas so that the excessive dependence of the population only on rice production may be minimized.

53. The present policies of fixing ceilings on ownership of land and also distributing cultivable areas to landless tenants is undoubtedly a desirable policy, but unless they are also accompanied by resources for adequate inputs and plant protection, production is certain to come down; and this, in turn, will adversely affect procurement especially in seasons of weak monsoons or other adverse conditions.

54. Price support takes various forms in different countries. In countries which have normally an exportable surplus, prices paid to the farmer and also other forms of assistance given to him, will naturally depend on the extent of demand from other countries and also the price paid by the importers. With the recent progress made in many countries in achieving self-sufficiency, there is certain to be some temporary reduction in export trade; but the demand may again go up if the present rate of increase in population in some of the countries is maintained for even 5 to 10 years. In countries which are normally deficient and likely to be so even in the near future, the support for local production and the subsidy for retail sale to the public will naturally depend on the resources of the country and the extent to which other agricultural products like jute, rubber, tea and sugar produced by the same country brings returns to the country; and also the

earnings from the industries and the per capita income of the people. This is illustrated in the national policies as referred to in an earlier section. The procurement policies and price support within countries which are aiming at self sufficiency are variable, but there is a great deal to be learnt from policies which have led to quick success as in Japan or the Republic of Korea. In these countries, the farmer is given cash advance even to start production so that he does not have to depend on any private individual or other lending organization to whom he will have to pay a high rate of interest. In countries like India, there is price support only after the crop is produced and that, too, at levels based on the evaluated cost of production in each region. This is intended to leave to the producer only a small margin of profit if his production is satisfactory. He is therefore interested in selling to merchants and other agencies if he can get a higher price. At the same time, it is the policy of each state - especially when the production is marginal - to restrict movement so as to keep the price as low as possible for its own people. This has its advantages and is of special benefit to the low-income groups. This does at the same time serve as a disincentive to the producer, who would naturally like to get as high a price as possible by selling in a more open market. Rice plays a prominent part in political ideologies in relation to each country or region and these in turn affect the policies and price structure. Within this framework, we have to suggest constructive modifications which will be of maximum benefit to the largest section of people.

### XIII. PRICE STRUCTURE IN RELATION TO VARIETAL PREFERENCES AND QUALITY STANDARDS

55. There are already about 8,000 varieties of rice and more are being added every year. Out of these, only about 700 are of national or international importance and are being produced on a large scale while others are only of local or academic interest. Selective preferences and rigid adherence to high quality standards are naturally most seen in either importing countries which also have high purchasing power or in producing countries, which are affluent and where the internal consumption is comparatively small. Good examples of these would be the United Kingdom and European Common Market countries, U.S.A. and Australia which are all small and selective consumers of rice and can pay good prices for quality products from anywhere in the world. There are also varietal preferences in the different major rice producing and consuming countries of the East and elsewhere and certain sections of

people, who are affluent, can always afford to get the best quality of their choice. There are also quality standards for general governmental procurement and distribution, but these are not as rigid as in Europe or U.S.A. Thus, the latter may reject grains showing any insect damage, or discolouration or including more than 5 per cent brokens; whereas there is some allowance for these and a more liberal margin for brokens (up to 25 per cent or more) in many of the Eastern countries. Some varieties are highly preferred both within countries and on international markets and they also fetch much higher prices than other varieties - e.g. Basmati of India and Pakistan, Sushi Mai of Japan, and Vary Lava of Madagascar. In many parts of India, even broken Basmati fetches a higher price than head rice of some coarse varieties. There is marked regional variation in taste. Thus, the Far Eastern countries, in general, prefer varieties which yield a pasty, cooked rice; and also glutinous varieties, which fetch a special high price in some countries. In India and also in many of the countries of the West, the preference is mostly for hard varieties which yield integrally separate cooked grains whereas varieties which are pasty or glutinous are not liked by the consumers. There is also preference for parboiled rice; many parts of India and also other countries which have Indian settlers. Superior qualities of parboiled rice, known by trade names like 'converted rice' and 'crystal rice' are consumed to a limited extent in the U.S.A. and Europe.

56. Within the framework of the taste preferences of each country or region, there have been commercial classifications and price structures based on size, cooking quality and flavour. The margin of price differences is greater in countries where there is adequacy of supply and some sacrifice in yield from superior varieties will not affect the national interests. In a country like India, for instance, where total production is of paramount importance, the price differences are not sufficiently large to encourage any expensive production of low yielding varieties, excepting a few scented varieties like Basmati. There have however been classifications like (1) superfine, (2) fine, (3) medium and (4) coarse, which have recently been further specified as (1) long slender, (2) short slender, (3) medium slender, (4) long bold and (5) short bold, which have been mostly based on length-breadth ratio. Generally, superfine and fine varieties are also slender and they fetch somewhat higher prices than the others. There are, at the same time, regional preferences such as those for long slender and scented varieties in the north of India, while in the south the preference is for medium or short slender and unscented

varieties. With the increase in production, there is also greater fastidiousness in choice, with the result that, while a high yielding variety like I R-8 is raised extensively in some areas, it is not so popular and hence produced to only a limited extent in others. For purposes of procurement, by the government or other agencies, there are set standards for both paddy and polished rice in many countries while, on a few others, the procurement and even distribution is only in the form of husked rice. Without going into details, the price structure in respect of paddy is based chiefly on variety, with penalties for (1) excess moisture; (2) immature grains, chaff and foreign matter and (3) proportion of discoloured and damaged grains as also other varieties. Every country and, sometimes, even individual regions within the same country have their specifications for fair average quality (FAQ). In broad terms, the rice should be in sound, marketable condition, sweet, dry, wholesome, uniform in colour and size of grain and free from mould, weevils, smell, discolouration, admixture of deleterious substances or colouring agents and all impurities except within certain prescribed limits, beyond which there may be penalty up to a certain limit and rejection for any further excess. Tolerance limits have been prescribed for the following:

- (1) Broken as  $\frac{3}{4}$  to  $\frac{1}{4}$  and also  $\frac{1}{4}$  to  $\frac{1}{8}$  of the normal head rice;
- (2) Foreign matter, inorganic and organic;
- (3) Damaged grains;
- (4) Chalky grains;
- (5) Discoloured grains;
- (6) Red grains;
- (7) Admixture of inferior varieties;
- (8) Dehusked grains; and
- (9) Moisture.

Limits vary for raw and parboiled rice from the same variety. In the case of parboiled rice, there is less allowance for broken and a little extra margin for moisture. In the case of coarse and bold varieties, the allowance for broken is more liberal than for fine varieties. The tolerance limits are variable and depend chiefly on the availability of the desired quality. Thus, there is a larger margin and in some areas no penalty for discolouration in wet season rice than for the one produced during the dry season. In a similar manner, the tolerance limit for broken will also have to be increased in certain seasons and for some varieties, especially when they have to be milled raw.

57. There is, however, one obvious omission in the procedure followed in many countries. There is at present no incentive for producing anything better than the prescribed standard. Thus, the producer does not get any better price for producing rice with a lower percentage of brokens, admixture with other grains or dehusked (milled) grains. There is also no inducement for producing rice with a lower percentage of moisture than the prescribed limit of 14 or 15 per cent. It is well known that rice at such a moisture level will keep less satisfactorily, especially in moist weather, than rice which is at 11 to 12 per cent. The present conditions are such that there is actually scope for adding more brokens or extra moisture so as to gain more weight without incurring any penalty. Such practices are well known, and virtually become abuses in many areas. Addition of water to paddy or rice for instance leads to poorer keeping quality and the wetted grains tend to become heated and discoloured during storage. Mould growth is often noticed as the result of this abuse. The buyers and the consumers become the ultimate losers as a result of such practices.

58. There is a strong case, therefore, for the introduction of a system for the payment of premia for qualities which are superior to the prescribed minimum standards.<sup>1/</sup> This is well known in the case of other agricultural commodities. In the case of copra, for instance, there is a standard price for the product having 5 to 6 per cent moisture. If the moisture content is above the limit, there is a penalty. If the moisture content goes below the limit, the producer gets a premium equivalent to the reduction in moisture below the limit. Similarly there is a premium if the oil present in the copra has a light colour and has a low free fatty acid content. If a similar procedure is followed in the case of rice, it will be of great benefit to the producer, buyer and the consumer. There are of course conditions in which the paddy becomes excessively dry and the moisture content comes down to 7 to 8 per cent. Such a paddy will break heavily during milling and is therefore better suited for parboiling than for raw milling. Such instances are, however, very rare. In the case of milled rice, reduction in moisture to the extent of, say, 2 to 3 per cent and also in the percentage of brokens is definitely of advantage to the consumer who will gain correspondingly in the quality and quantity of cooked rice.

<sup>1/</sup> It is pleasing to note that there is already some recognition of the need for payment of suitable premia for clean paddy or rice with lower moisture content than the prescribed limit and that some of the states in India have evolved procedures which may soon find application.

59. The above aspect is one which will deserve the careful consideration of the Seminar and also for introduction of premia for better quality especially at the stage of procurement by governmental and other agencies.

#### XIV. MARKETING ORGANIZATION

60. Until a few decades ago, there was practically no state control in many countries and rice trade - as paddy or rice - was almost entirely in the hands of private enterprise. This afforded scope for several intermediaries - such as the local representative or agent of the owner, the money lender, the village merchant, the itinerant merchant, the commission agent (at rural as well as urban level), the wholesale merchant, the miller and the retailer - besides local as well as municipal organisations and their executives, charities and levies of different kinds - who got their share of the earnings before the rice reached the consumer. There was also the inevitable rise of 50 per cent or more in the retail price of rice during the off-seasons and the benefit of these also went to the stockists and the retailers. There was some overlapping of functions and in many areas the merchants themselves became land owners, the money lenders and wholesale buyers, besides also controlling the retail trade. As the result of the above, hardly 50 to 60 per cent of the price paid by the consumer went to the producer while the rest of the money went to the benefit of the intermediaries, many of whom became quite wealthy, while the producers, especially the smaller ones, became poor and indebted and had to often mortgage or sell their properties. Added to this, there was hoarding of grains by the intermediary groups and further profiteering during bad seasons. Consequent to these and the periodic food crises in many of the countries, the governments had to intervene and to ensure steady supply at a fair price to the consumers. There was also the urgent need to protect the interests of the producer and help him in every possible way to increase his production and to get a gainful return. State intervention became necessary not only for internal distribution, but also for export, wherever it was possible, so as to get the best possible prices conforming to the requirements of the importers and to maintain the markets.

61. As may be seen from the earlier section, almost every rice producing and consuming country in the world has one or more national organisations with varying functions and scope. In some countries, there is completely monopolistic procurement by state organisations, which also provide advance to the producers. The

merchants get their allotments only from the government, and the margin of profits to be earned by them, the millers and the retailers are also fixed by the government. In some countries like India, the government procures only a pre-determined percentage of the anticipated production so as to meet certain essential needs - such as supply of rice at a specially reduced price to low income groups - and also for building up buffer stocks. As even this would be a large undertaking, the government enlists the assistance of bodies like the Food Corporation and co-operative societies. In some areas, the merchants are also allowed to procure on the condition that they sell a part of the procured grain to the government at a price fixed by the government but the merchants are free to sell the rest at the best price which they can get within the state. These have all got their economic implications; and while they provide a minimum price to the producer, there would still be scope for the wholesale and retail merchants and other intermediaries still getting a good share of the price paid by the consumers in the open market.

62. Co-operative procurement, processing and marketing is based on sound ideology and is working very well in many countries. In the case of commodities like milk and milk products it is working extremely well in some parts of India. There is quality control, scientific processing with large-scale production, and marketing along business-like lines. All these bring profit and the benefits are being ploughed back for the benefit of the producers who are now getting much bigger returns in various forms than they would have got by direct vending of their milk. The same principles will apply to the procurement of paddy, its storage, milling, processing of by-products and the marketing of the resulting products. There should also be honesty and dedicated effort at all levels. There should be rigid quality control and the producers should in turn recognize that their own interests will be ultimately sacrificed if they insist on getting full price without deductions for extra water and foreign matter in the grains which they supply. Subsequent marketing should also be along business-like lines.

63. It should be admitted that storage, milling and utilization of by-products are not well advanced in many of the developing countries. But there is the excellent example of the success achieved in Japan which would be worth copying. Though it could be outside the purview of this paper, storage of paddy, dehulled or polished rice, without any deterioration, requires much more intensive study with particular reference to hotter and more humid regions than Japan. There is also need for more

intense research on milling itself and particularly with reference to more efficient maintenance and operation of these mills for maximum economy and yield of different products. There is also need to more efficiently utilize the bran and germ for oil and food products besides the animal feed. An aspect which is now becoming prominent in India is the linking of the production of parboiled paddy (with hot soaking - and mechanical drying) with modern milling. This aspect has not, so far, been much studied. Some advance has undoubtedly been made in recent years; but there is still need for greater simplicity and ease of operations, with economy. There is evidence to show that a major change in the very technique of parboiling is technologically feasible and that will greatly simplify the operation and reduce the cost. If scientific and hygienic methods are to replace the unhygienic, traditional methods of parboiling, there is urgent need to simplify the technique and to reduce the cost of processing.

64. As already mentioned, there is yet no justification for complacency about the rice position in a country like India. There have lately been a few good seasons; but bad ones with weak monsoons are certain to follow. A total deficit of 4 to 5 million metric tons, which may be possible, can be covered only by intensifying production during favourable seasons and building up large buffer stocks. This will be possible only by providing more incentives to the producers, especially in regions where more intense production is possible. In addition to paying adequate cash advance towards production, the state should take over the entire surplus crop from such regions, on payment, store it by the best scientific methods and then have it processed and milled. The milled rice, which will be released in accordance with the requirements of the season, will have to be sold at rates fixed by the government to wholesale merchants, who will have to sell it to retailers at prices fixed by the government. Such a system is already working very well in Japan. The only modification that is required is that the government should share the resulting profits with the producers to whom the extra payment will have to be paid as a bonus in proportion to their production.

65. All the countries are now well alive to the importance of pure, disease-free seed with a high percentage of germination; but only some of the countries have made it a national policy to produce and to distribute seeds on favourable terms to the producers. Burma is one of the few countries which not only produces but also ensures the distribution and utilization of the seed by the farmers. In a



country like India, there are many seed farms and there are also some seed processing and preserving plants. There has not however been sufficient drive to bring home the importance of good seed and to make it available even on special subsidized terms to the producers. The average farmer now uses a part of the crop from the previous season as seed for the next season. This results in hardly 50 - 60 per cent germination and the yield is also not satisfactory as with a good seed. There is always admixture with other varieties and particularly coloured ones. The yield may be at least 10 per cent more if good seed is used, but this must be demonstrated. Production of good pure seed, its drying and preservation will naturally cost more money than the production of rice for consumption. It should be the concern of the state to educate the farmers about the value of good seed and to demonstrate the benefits resulting from its use. Production can be through state-owned seed farms or cooperatives or industries; but there should be price support to see that such institutions do not lose. There is a strong case for the free supply of good seed and treating it as a part of the advance payment made to the farmers. Direct marketing of the seed is not likely to succeed until such time as the benefits resulting from their use are fully demonstrated to the farmers. Even then, there will be need for some subsidy, so that the price will not be very much higher than the market price for paddy itself.

#### XV. PATTERNS OF DISTRIBUTION

66. National policies in respect of the distribution of rice will depend chiefly on the anticipated margin between production and demand. Some countries like U.S.A. and Australia produce rice largely for export. The per capita consumption within those countries is very small and as the people have adequate purchasing power, the internal prices are not very material. Burma and Thailand have long been surplus producers. Such countries are concerned only with procurement for export and they have no need to impose any control on internal distribution which can easily be done through the usual trade channels. Many of the other countries are either marginal producers or may have to continue for long in a deficit position. Ceylon has to import about 50 per cent of the total requirement, subsidize internal production and at the same time make rice available at a low price to the consumers. That country has adopted a system of rationing which is working fairly satisfactorily. Malaysia and Hong Kong are also deficient; but being prosperous they are able to

import all their requirements and to maintain an open market with minimum restrictions. They maintain adequate reserve stocks, keep a check on the holdings of the licensed distributors and ensure the maintenance of fair prices. Japan is becoming self-sufficient and there are plans to reduce the area under rice to prevent over-production. The government has the entire procurement and maintains large stocks - about 10 million metric tons - in the form of husked (brown) rice which is distributed to the retailers who do most of the milling and marketing. The Republic of Korea which is offering quite attractive incentives for production is also fast attaining self-sufficiency, but some import is still necessary. Procurement and storage is in the form of brown rice and distribution follows a pattern similar to that of Japan. China (Taiwan) is fast stepping up production, and procures about 25 per cent of the total production in the form of paddy, but the storage and marketing are in the form of husked rice. There is rationing, at fair prices, for the low income groups. The consumers prefer polished rice and there is a check on the degree of polishing. There are only a few other regions like Papua where husked rice is distributed, and there are indications that people are learning to like it. Nutritionally, there is a great deal to recommend the consumption of husked rice, but there is generally consumer resistance because of the difficulty in cooking and digesting the product. Some day, the world may need it and scientists should evolve some simple and inexpensive method of processing brown rice so as to render it more acceptable to consumers.

67. The situation in countries like India, Pakistan and Philippines continues to remain marginal. In spite of periodic adverse seasonal conditions, the average production is increasing; but the demands of the growing population keep on increasing and there is ample reason to fear that, in spite of all the advances, the demand may eventually outstrip production. Even during recent years, India has been passing through shortage and seasonal gluts in different regions. Each state wishes to preserve its own self-sufficiency and have adequate margin for future needs. At the same time, there is growing agrarian discontent in many areas. The producers are not satisfied with the prices which they are getting and the farm workers are pressing for and getting higher wages in kind and cash. The conditions are not, on the whole, favourable to such substantial increase in production as the country will eventually need.



(South as well as North) and the... being self-sufficient and... through... stocks and... through...

**VI PROBLEMS OF RICE PRODUCTION AND SUPPLY**

70. Until a few years ago, there was the... the major rice growing countries... the needs of the growing population... rice in the whole world to meet such... thanks to the intensive agricultural... of new high yielding varieties, increased... fertilizers and also improved plant... countries are fast becoming self-sufficient... Many leading authorities have repeatedly... position should be looked upon as only a... increased production and, unless there... control, many of the rice producing... Moreover, rice production requires... the periods: spell of such... of many countries. Building up of large... and the surplus of favourable years...

71. There have, in the past, been proposals for... stocks, not only for meeting... One of these proposals has not... resources, there have been... any rate, for the varieties... respect of bilateral arrangements... countries would show that, except... fluctuations in demand from year to year... arrangements as between India and... to used as buffer stock for a subsequent year.

The major problems of most of the countries are largely internal and relate to production, storage and marketing within the countries themselves. Many of them have been referred to in the earlier sections of the paper. An essential requirement of some of the countries like India will be to maximize the utilization of underground water resources so as to make up at least partially for the periodical failures of monsoon. Some of the other possible practical measures may be listed as follows:

- 1) Eradication of rural indebtedness by provision of an advance to farmers, partly in cash and partly through assistance in regard to tractor ploughing, free supply of good seed and fertilisers, besides pest control. There may also be crop insurance which may be treated as a part of the assistance.
- 2) Procurement of the entire crop of paddy by the state and organisations acting on its behalf. Payment of the balance of the price on delivery, with some bonus for being on before a certain date. Rigorous adherence to standards and insistence on deduction for excess moisture, foreign matter, etc. as prescribed by the government. Premium for qualities which are superior to the prescribed standard and which will result to a higher out-turn of rice.
- 3) Storage to be taken over as a responsibility of the state, with the assistance of the appropriate agencies. Where necessary, godowns, with proper ventilation and facilities for pest control should be constructed and maintained by the state.
- 4) The paddy should be released in convenient instalments for processing and milling by accredited agents. First preference should be given to organisations employing hygienic methods (especially for parboiling) and also to modern mills which could provide the maximum yield of rice and also bran of high quality.
- 5) The rice should be released by the government to licensed wholesalers, who will have to distribute the product to retailers at a pre-determined, small margin of profit. The maximum retail price should also be fixed by the government and they should be displayed by the retailers for the benefit of the consumers.

6) Out of the margin of profit realized by the government from the above sales, 50 per cent should go back as bonus to the producers while the rest may be retained by the government for developmental programmes, assistance towards scientific research, establishment of subsidiary industries based on by-products and subsidy towards rice to be sold at a reduced price to low-income groups.

73. The above are based partly on the procedures successfully followed in countries like Japan and the Republic of Korea; and partly on the experience of other countries. They will involve large initial outlay from the government, but the money will come back and besides meeting the interest, also bring some profit within a year. They will also bring some additional earning to the producers and serve as incentives for more production. At a rough estimate, at least 75 per cent of the price paid by the consumer will be realized by the government and after deducting all expenses, it will bring a profit of at least 10 per cent to the government. Half of this can justifiably be paid as bonus to the producer. In addition to the above, the government or the agencies employed by it will earn some profit through ploughing, supply of seed and fertiliser and plant protection, all of which will also be of immediate benefit to the producer. There will also be earning through crop insurance which will serve as a safeguard both to the producer and to the government.

74. For a country like Japan, investment on programmes such as the above would represent only a small part of the national income. For many other countries, it will represent a big undertaking, which cannot be first undertaken on a large scale. In a country like India, where there is already an Intensive Agricultural Development Programme, and also well organised agencies like the Food Corporation and also cooperatives, the programme can be first taken up as a small venture in a restricted area. The Food Corporation is already procuring, storing and milling the paddy. Some of the cooperatives are also doing the same. Once the rice is made available, the government should have no difficulty in selling it to merchants. It may be preferable to fix the price in advance rather than auction it, though the latter may bring higher earnings. The interests of the consumer are important and they can be safeguarded only by limiting the margin of profit by fixing the prices.

75. It is only in Japan that storage facilities for rice are ample at the present time. Other countries should also take it up as a major programme. In many parts of India, for instance, the major part of the country's paddy and rice are

stored in ill-ventilated and moist godowns and there is ample evidence of deterioration in quality. The use of silos which have already been constructed should be made more efficient and paying. Only paddy which is uniformly dried to 13 to 14 per cent or less of moisture should be stored in silos and the paddy should be well cooled before storage. If suitable pesticides (like phostoxin) are introduced right from the beginning, and the silos completely filled and sealed, the quality of the rice may be well preserved. This aspect will require further study and standardisation. There has been long experience of storing well dried paddy in sealed containers and this may well be applied to silo storage.

76. Until such time as the methods of storing husked (brown) rice or polished rice are well standardised for different countries, this need not be taken up on a large scale. There is, however, the long experience of countries like Japan from which a great deal can be learnt.

77. The keynote of success of such a programme will lie in proper scientific control. There is already a large amount of experience in some of the countries and more talent can also be built up. Over and above everything, there will have to be a background of integrity and dedicated effort. These cannot, of course, be taken for granted and there should be periodical counter-checks by independent assessment of the quality and performance at each stage.

78. It may be conservatively estimated that in a country like India, a programme such as the above will lead to at least 10 per cent more production. The producers will get a bigger return for their crop than has so far been possible. They will be largely relieved of indebtedness which has been the curse of many rice growing regions. The consumer will also get his rice at a fixed price which will be lower than what he is now obliged to pay. The merchants and other intermediaries will also benefit on a reasonable scale.

79. Before concluding, it would be pertinent to state that, if the benefits of a programme such as the above are to last, there should also be bold and effective national measures for the control of population. At the present time, there is alarming increase in population in many of the rice growing regions of the world. The economic distress resulting from the above is the root cause of much of the unrest and trouble in many of the areas; and these, in turn, help to nurse ideologies which will eventually lead to hatred, violence and destruction. While the object of the seminar is primarily to deal with different aspects of rice processing, it will also be relevant to draw attention to factors which will have a direct bearing on the measure of success that can be achieved through implementation of the recommendations.

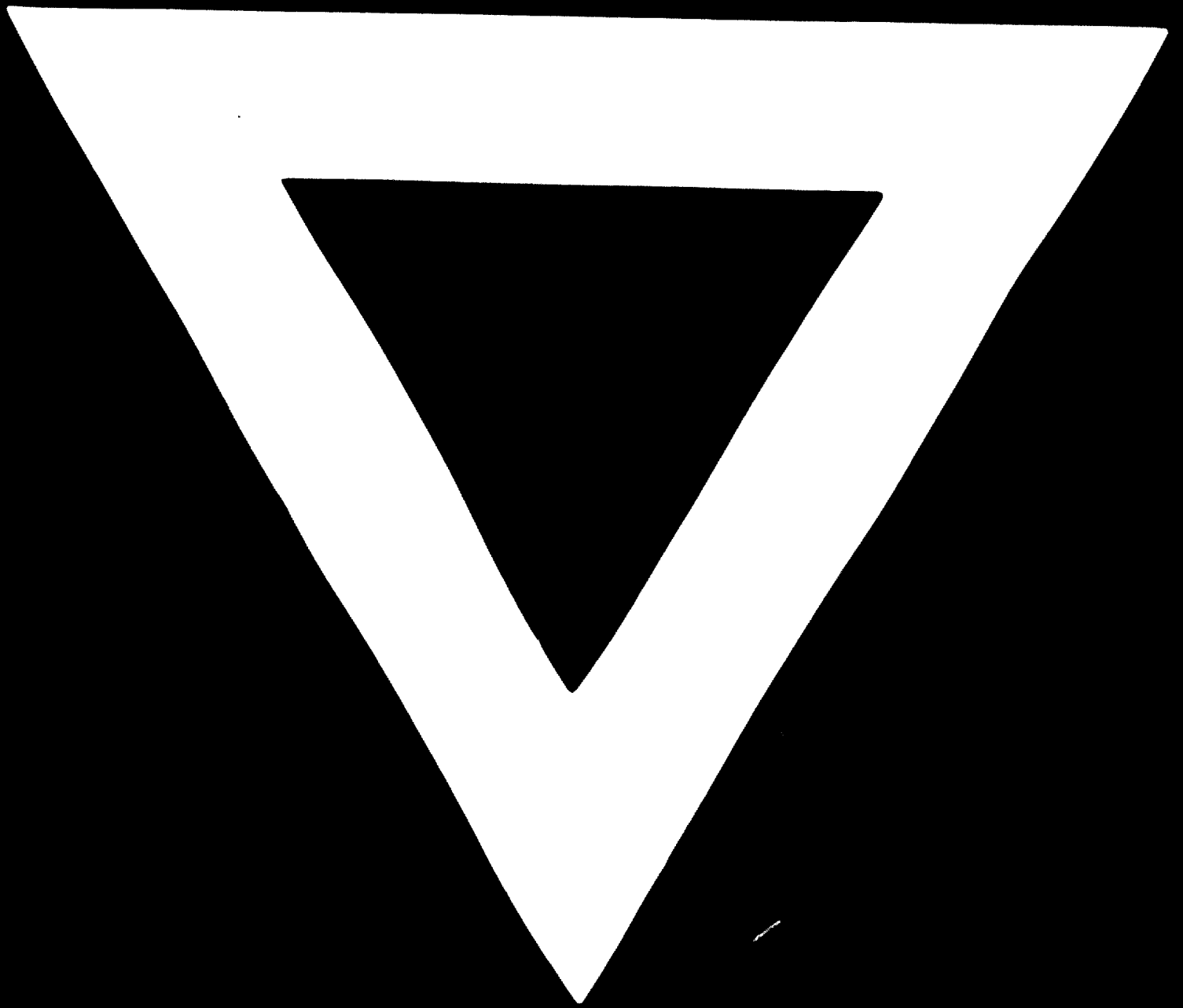
80. The author is thankful to the Department of Food of the Government of India and the Food Corporation of India for help with materials and also the Agricultural Marketing Adviser to the Government of India for the facilities of his library and the loan of publications required for reference.

81. The following is not intended to represent a complete bibliography relating to the subject. Only a few references which were available, have been cited. For most of the material, the author has drawn on his own experience of producing, milling, distribution and marketing in India during the past thirty years, both as a producer and the President of an apex cooperative marketing federation, which is concerned, chiefly, with the procurement, storage, milling and marketing of rice and its by-products.



XVII. BIBLIOGRAPHY

1. Report of Special Rice Meeting of the FAO - Bangkok, 1953.
2. Stabilization of international trade in rice - a report on possible measures, prepared by F. Benham. Published by FAO, 1955.
3. Report on the marketing of rice in India - by the Agricultural Marketing Adviser to the Government of India, 1955.
4. Rice in India. Monograph published by the Indian Council of Agricultural Research, 1956.
5. Price Spread of Rice. Studies in Costs and Margin. Published by the Ministry of Food and Agriculture. Directorate of Marketing and Inspection, 1961.
6. World Rice Economy, Vol. 1. Selected Papers - Commodity Bulletin Series No. 36. Published by FAO, 1962.
7. World Rice Economy, Vol. 2. Trends and Forces. FAO Commodity Bulletin Series No. 36, 1963.
8. Agricultural Prices in India - Directorate of Economics and Statistics, Ministry of Food and Agriculture, Government of India, 1963.
9. Rice Economy of Thailand, by Khulthongkham and Sheo-er Ong, Ministry of Agriculture, Bangkok.
10. The Problems of Thai Rice, by Srisupab, Arunsri and Srisurnksa, Nguen Studies by Ministry of Agriculture, Bangkok 1964.
11. Report on the marketing of Agricultural and other rural produce in Malaysia, by H.C. Briggs, Ministry of Overseas Development, London. Department of Technical Cooperation, 1964.
12. Improved marketing of selected farms products in the Philippines. F.A. Taiongsan, C.D.R.C. Study Series No. 6, 1965.
13. Rice Production, Marketing and Consumption in Thailand. Vanrob Isrankura, 1965.
14. FAO Commodity Policy Studies No. 18. National Rice Policies, 1966.
15. World Rice Economy in Figures, 1920 - 63. Commodity Reference Series No. 3, FAO 1966.
16. The Thai Rice Trade - Social and Economic Studies in Development. Dan Usher, Australian National University Press, Canberra, 1967.



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