

# MARGA

QUARTERLY JOURNAL

VOL. 2 NO. 3 1974

THE U. N. AND THE NEW  
INTERNATIONAL  
ECONOMIC ORDER

GAMANI COREA

SRI LANKA'S NATIONAL  
ACCOUNTS — Notes for the  
Regression Enthusiast

ARUN SHOURIE

HOUSING DEVELOPMENT  
IN SRI LANKA — 1953-1971

HUGH KARUNANAYAKE

GREEN REVOLUTION WITH OR  
WITHOUT TRACTORS —  
The Case of Sri Lanka

IFTIKHAR AHMED

CODE OF CONDUCT FOR  
TRANSFER OF TECHNOLOGY

FORUM — Aims and Ideals of  
University Education

HILARY CRUSZ



*Published by*

**MARGA INSTITUTE**

# M A R G A

*Editor*

GODFREY GUNATILLEKE

*Editorial Office*

61, ISIPATHANA MAWATHA, COLOMBO 5.



*Published by*

MARGA INSTITUTE

**COPYRIGHT RESERVED**  
*Inquiries regarding permission for republication  
may be addressed to the Editor.*

Printed at Kularatne & Co., Ltd.  
732, Maradana Road, Colombo 10.

- |                   |    |  |
|-------------------|----|--|
| GAMANI COREA      | 1  | <i>THE U.N. AND THE NEW<br/>INTERNATIONAL<br/>ECONOMIC ORDER</i>                       |
| ARUN SHOURIE      | 21 | <i>SRI LANKA'S NATIONAL<br/>ACCOUNTS — Notes<br/>for the Regression<br/>Enthusiast</i> |
| HUGH KARUNANAYAKE | 42 | <i>HOUSING<br/>DEVELOPMENT<br/>IN SRI LANKA — 1953-1971</i>                            |
| IFTIKHAR AHMED    | 64 | <i>GREEN REVOLUTION<br/>WITH OR WITHOUT<br/>TRACTORS — The Case<br/>of Sri Lanka</i>   |
|                   | 75 | <i>CODE OF CONDUCT FOR<br/>TRANSFER OF<br/>TECHNOLOGY</i>                              |
| HILARY CRUSZ      | 86 | <i>FORUM — Aims and<br/>Ideals of University<br/>Education</i>                         |

**LIST OF NEW CONTRIBUTORS**

- IFTIKHAR AHMED** — Is on the research staff of the World Employment Programme, International Labour Office. He was Asst. Professor of Economics, University of Dacca, Bangladesh, Visiting Fellow, Institute of Development Studies, University of Sussex in 1974.
- HILARY CRUSZ** — Is Professor of Zoology, University of Sri Lanka, Peradeniya Campus.
- HUGH KARUNANAYAKE** — Is on the research staff of the Marga Institute.
- ARUN SHOURIE** — Consultant, Indian Planning Commission and formerly an Economist in the World Bank. He was in Ceylon on a number of I.B.R.D. missions.

## THE U. N. AND THE NEW INTERNATIONAL ECONOMIC ORDER

---

*Gamani Corea – in an Interview with Marga*

*This interview was given shortly after the Special Session of the U. N. General Assembly convened in April this year. The deliberations of the Session led to a declaration of principles and a programme of action on a new International Economic Order. Marga regrets that owing to unavoidable delays in releasing the current issue of the journal, the interview could not be brought to its readers earlier. Although a few statements contained in the interview may have lost in immediacy and topical interest as a result of the delay in publication, the main themes that are discussed focus on issues which are central to the continuing global crisis.*

**Q:** You will grant that there is widespread scepticism regarding the capacity of the U.N. system to respond effectively to global crises. It would be useful if you could first give us your own impressions of how the U.N. initiative regarding the Energy crisis came to be taken and how they culminated in the Special Session of the General Assembly.

**A:** The Special Session was convened at relatively short notice. Prior to it there was an attempt to deal with the energy crisis in a more limited forum. It would be remembered that the United States called a meeting of the major petroleum consuming countries in Washington to see how best consumers could react to the new situation caused by the increase in oil prices. That particular meeting was not a success. On the one hand, there were disagreements amongst the participants themselves and, on the other, there was a feeling that the energy crisis ought to be tackled in a more representative forum. It was felt that the best forum was the United Nations system itself.

In the United Nations it was possible to bring together all the parties interested in the energy situation – the developed countries who claimed to have balance of payments problems arising out of the higher import bill, the oil producer countries, and also the developing countries who were importing oil and who were affected. It was only the United Nations which offered a universal forum in which this energy crisis could be tackled.

Now, an initiative to harness the U.N. system for dealing with this problem was first made by the French. The French made a proposal to the Secretary-General of the United Nations for convening an U.N. conference on the energy situation. The conference that eventually took place was of a different character. It was felt by many developing countries that the present situation was more than a matter of energy alone. The developing countries were of the view that it was not only the price of petroleum that was causing them problems but also the prices of many other of their essential imports – manufactured goods, capital equipment, raw materials, fertilizers and also foodstuffs. It was therefore felt that a conference confined to the energy issue was not what was wanted to meet the present situation.

Shortly after the French proposal the President of the Republic of Algeria made a proposal to the United Nations for a meeting to deal not so much with energy as such, but with the whole question of raw materials and development. It was felt that this theme was a more all-embracing, more inclusive, and therefore a more appropriate one than the subject of energy alone. There was a good response from all the parties to this initiative of the Algerian President, and a decision was taken to convene the meeting at very short notice.

Now, this meeting was different from previous sessions of the General Assembly in many ways. For one thing it was, as I said, convened at exceptionally short notice, with very little time for preparation and documentation. For another, this was perhaps the only occasion, so far, on which the General Assembly met to discuss primarily economic issues. In the past, economic questions were considered as part of the

varied agenda of the General Assembly. But this session was for the first time devoted entirely to economic subjects, and I think it is a pointer to a trend that is emerging where the General Assembly, which is after all the parent forum of the whole United Nations system, is becoming increasingly concerned with economic issues. I recollect being asked by press correspondents whether a conference of this sort – dealing with the question of raw materials – should not, more appropriately, have been convened under the auspices of UNCTAD. My reply was that there could be no better forum than the parent body of the United Nations system, i.e. the General Assembly, to discuss an issue like this at the highest political level. The energy crisis has all kinds of aspects – technological, economic and so on – but basically the solutions to be adopted are of a political character, and it was in my view quite right and proper that this issue should have been taken up under the auspices of the General Assembly itself.

**Q:** To the average citizen, U.N. sessions of this kind often appear as part of the interminable and inconclusive debate between rich and poor countries. To your mind, is there anything new and significant in the manner in which the U.N. system responded to the crisis? In what way, if at all, was the Special Session different from similar debates in the U.N. Conference on Trade and Development where developed and developing countries join issue on the unequal relationships between them?

**A:** I think it is to the credit of the United Nations system that it was able to convene this Special Session of the General Assembly at such short notice. After all, the new situation was a particularly urgent and critical one. It was felt that if there was going to be any action, this action would need to be taken fairly early. Some people might have thought the whole U.N. system too cumbersome, too slow, too sluggish, to respond to a situation like this. But the fact that the Assembly was convened, that it was able to meet at short notice and was attended by spokesmen of a high level, does point to the resilience and flexibility of the system. I believe that something like 78 or so Foreign Ministers attended the Special Session and addressed the Plenary. About

8 or 10 Heads of Governments and a number of other Ministers concerned with development planning and the national economy were also present. So it was an exceptionally high level meeting of the General Assembly.

Now, it is a fact that there wasn't a great deal of documentation. Some people thought this a weakness, but it was a result of a deliberate wish of the delegations, particularly the delegations of the 77 developing countries (the so-called "77" - the actual number is much larger). They did not want this to be the usual kind of routine General Assembly session where a mass of documents were put before delegations as background material. They felt that the issues were sharp enough and did not need a great deal of supporting material. There was a request actually for only one document, and that was for a document setting out the facts regarding the course of prices in general from 1950 to the present day. I believe that was the only document before the General Assembly. This itself was a departure from previous meetings which were submerged by a mass of documentation which made it very difficult for delegations to see their way.

It was also recognized that there was a different spirit or atmosphere at this meeting of the General Assembly. There was a general feeling that there was a problem to be tackled. There was a widespread desire that this problem be faced in a spirit of "co-operation rather than confrontation". I think it is true to say that, by and large, this attitude was reflected in virtually all the statements made at the General Assembly. There wasn't a great deal of the usual rhetoric in the statements. There was a clear appreciation on the part of all, that the new situation caused problems for various groups of countries - for the developed countries, for the developing countries which had to import oil and other essential items, and even for the oil-producing countries themselves which had problems of their own - and right through there was a feeling that something needed to be done.

The real challenge which faced the United Nations system and the General Assembly in the course of the debate was how to capture and concretise the willingness to act and to translate it into a really effective programme. There was

a danger that the opportunity might be lost, that because of the difficulty of hammering out a practical course of action, the chance given by the General Assembly might be missed. In the end I think the result did turn out to be satisfactory, but this was an anxiety which many people felt about the General Assembly, particularly towards its later stages.

Now, one should not overstate this. Although the debate in the Plenary showed this general spirit of co-operation, the business of the ad hoc Committee was a more hard-nosed affair. Here, there were real problems because of different points of view. The committee was, unlike the Plenary, the body in which the resolutions were drafted and hammered out and in which attempts were made to arrive at a consensus. There were no other committees at this General Assembly. The normal General Assembly sessions are accompanied by meetings of the 2nd committee dealing with economic matters, the 3rd committee, the 4th committee, the 5th committee and so on. This Assembly session had only one ad hoc Committee of the Whole, and the task of that Committee was to decide on a Declaration and a Programme of Action. And although the General Assembly displayed a spirit of co-operation as far as the debate in the Plenary went, the ad hoc Committee had to come down to brass tacks and deal with real issues on which there were differences of opinion. Nevertheless, as I said before, the ad hoc Committee did, by and large succeed in capturing the spirit of the General Assembly for arriving at a concrete result.

- Q:** Observers have commented on a new pattern of relationships between developed and developing countries which seemed to emerge from the debate in the Special Session - one notable feature being a greater degree of self-reliance and confidence on the part of developing countries, and an enhanced recognition of global interdependence on the part of developed countries. Would you consider this a valid conclusion?
- A:** Yes, both these themes were manifested in the course of this Special Session. I think the developing countries did speak with a greater assertiveness than before. There was a feeling that the old relationships between the rich and the poor

countries were changing; that for many reasons the developed countries were becoming, or were being made to become, more aware of the fact that they themselves were dependent on the rest of the World for many things of concern to them. The fact that the oil producer countries, themselves developing countries, were able through their concerted action to raise the price of oil and to bring about a drastic change in the whole international monetary and financial situation showed that the developing countries were not wholly devoid of instruments of pressure and power. I think that this situation made a psychological change in, so far as the tone of the debate was concerned. There was a greater confidence in the way in which the developing countries were propounding the themes to which they were wedded. One of the themes which came out forcefully was a strong assertion of the sovereignty of developing countries over their natural resources, reflecting a feeling that they must be masters of the geographical territories which they command, that the resources which these territories contain must really belong to them, and that their use must be determined by them. The right of developing countries to nationalise resources was also asserted very strongly.

On the part of the developed countries there was a greater awareness of the interdependence of the global system that was perhaps evident before. I think this awareness is a new theme or a relatively new theme. One finds it beginning to take shape in the course of the discussion in the field of human environment. During the 1972 Conference in Stockholm on the human environment the theme of "only one earth" came to the fore. There was a growing recognition on the part of all countries that we belong to one planet, that what takes place in one part has its inevitable repercussions on the other part, and that the developed countries can no longer consider themselves as being in a position to act in a unilateral fashion. Not only do their actions have repercussions on others but what others do can have repercussions on them - as was brought home clearly by the action of the oil producer countries. So this approach or attitude did provide, in perhaps a very halting and tentative way, the possibility for a new approach in international relationships. In the past the developing countries were largely supplicants.

They could only plead their cause; they asked for more aid and assistance but had very little to give by way of incentives to the donors or very little to apply by way of sanctions. It was an unhealthy relationship. Now, in the present situation, there is a feeling that the theme of partnership has more meaning than before; that the developing countries are in a position to utilise at least some instruments of countervailing pressure, however weak and embryonic they may seem at this stage; that their requests could be supported with some action or the beginnings of some action; and that the developed countries need to respond simply because the status quo was no longer tenable. One of the features of the Special Session which was quite evident was that, there were really no countries, particularly amongst the Western countries and the Third World countries, which were wholly satisfied with the status quo. Everybody had problems, everybody wanted to see some change from the present situation, and there was for this very reason, a willingness to grope for solutions and for new approaches.

The whole question of relationships between the Third World and the industrialised countries is subject to changing dimensions. In the 'fifties the developing countries did not have a strong voice; many of them were still in a state of colonial subjection or had just emerged from that state. There was a halting effort to provide aid, but such aid was really a form of largesse. It was marginal and peripheral to the needs of these countries. Perhaps the donor countries were under the mistaken impression that, this kind of remedy was all that was needed to tackle the profoundly difficult problems of the Third World. Today there is, I think, a conviction that these old approaches have run their course and that the relationships between the developing countries and the developed countries would have to be put on a new footing.

There are two elements in the new thinking and these are as you have stated. The principle of self-reliance on the part of the developing countries - not self-reliance in the sense of national autarchy but a kind of collective self-reliance - is beginning to gain recognition and to gather momentum. There is a feeling that the developing countries can do much to help



themselves, whether by taking action to improve the markets for their products or by co-operating amongst themselves to expand trade and to facilitate payments, communications, transportation and so on. They do not necessarily have to wait on the response of the developed countries before they can make any progress. I think this theme of collective self-reliance would be developed further in the period to come. It is at its initial stage and I am sure that there will be a great deal of attention given to it.

The other element is that of co-operation. Collective self-reliance does not mean that the Third World would cut itself off from the rest of the global system and allow the other two components – the Western market economy countries and the socialist countries – to live apart. Collective self-reliance is conceived as falling within the framework of a system of international co-operation. This theme is also being stressed very strongly. If you look at the Declaration and the Programme of Action that came out of the General Assembly, both of which were drafted really by the 77, one finds this idea of “walking on two feet”. On the one hand, there is the concept of self-reliance; but on the other the concept of co-operation. And there was a feeling that the more self-reliance you are able to develop, the more successful you would be in establishing a framework of co-operation because the basis for this co-operation would be partnership rather than supplication.

**Q:** What is the significance you would give to the Declaration with which the U.N. session concluded? Will it have any immediate operational impact on the policies pursued by the international community on the development of the Third World?

**A:** Of course, cynics could write off the Declaration as just a meaningless or empty gesture, a torrent of good words and intentions. It is true that the Declaration itself has no immediate operational significance. But I do not regard the Declaration as simply a meaningless gesture of this kind. If one reads the declaration one does find in it some elements that are new. Perhaps they are not all phrased in a very definitive fashion. But, the declaration brings out the new

spirit of greater self-confidence and assertiveness amongst the developing countries – the spirit of the developing countries saying to the world at large that they are very much a part of the global system, that their needs are part of the needs of the whole system, and that what is happening in the Third World is of consequence to the rest of the international community. The principle of nationalisation has been enunciated in the declaration. The principle that the developing countries have the right to organise themselves to get better terms for their exports is also there. Some say that this is an invitation to set up producer cartels which could be counter-productive and lead to economic warfare between producers and consumers. I don't see it like that for one moment. There is today a great deal of cartelisation – at least concentration – on the buying side of many produce markets, many commodity markets, and I think that it would be a wholesome thing if there were to be some degree of co-ordination of policies on the part of the sellers of primary products. The principle of producer action to improve the market did come out in the declaration and that is new.

There was also the idea, which has not been spelt out at great length, of a new international economic order. This is a reflection of the feeling that the developing countries have come into their own; that the old international order, characterised as it has been by the dominance of a few developed countries with the remainder more or less existing in a state of passive dependence, has to give way to something different. The exact characteristics of this new economic order have not been spelt out, but the dominant theme is the sovereignty and the economic individuality, so to speak, of the Third World countries. The fact that all this has been incorporated in a declaration which has by and large been accepted by the General Assembly is a meaningful step.

Now, both the Declaration and the Programme of Action were adopted by the Special Session of the General Assembly without a vote. It was described as having been adopted on the basis of a consensus. This does not mean that the developed countries had no questions about these documents. They did in fact have many reservations and qualifications to make on specific points. But there was no dissenting vote or even an

abstaining vote on the declaration and the programme of action as a whole, and I believe that this in itself is a rather significant step. UNCTAD is convening a Working Group on a Charter on the economic rights and duties of states. This was an initiative of the President of Mexico taken in Santiago and the work on the draft of a charter has been in progress and is fairly well advanced. It is hoped that something could be presented to the General Assembly at the end of this year. I think that the declaration of principles could in many ways contribute to the work of drafting the charter itself.

**Q:** The Special Session seemed intent on a programme of action which would follow on its declaration. How do you assess this programme on its broad features as they emerged at the end of the session? What role would UNCTAD have in such a programme?

**A:** Yes, the General Assembly did come out with a declaration and a programme of action. The programme of action itself was in two parts, one of which was a general programme of action relating to the establishment of the new international economic order. The second part was a programme of special measures to deal with the immediate situation resulting from the increases in the price of essential commodities and the difficulties which some countries were facing. Now, I think that the programme of action is a very significant document. Much of it is of course a reinforcement of earlier U. N. resolutions and recommendations. But the programme is wide ranging; it covers a series of topics. Many people might have preferred a more selective action programme focussing on fewer issues of basic importance. But as it stands the programme is a very comprehensive document and deals with most of the issues relevant to the problems of the developing countries. Many of these are, as I said, contained in other U.N. resolutions and documents – for example the International Development Strategy for the Second Development Decade and the Resolutions of the UNCTAD conference in Santiago. Many of these resolutions are repeated in the programme of action, but they are repeated for good reason because many of them have yet to be implemented. The programme of action attempts to infuse a new spirit of urgency to the implementation of these earlier targets and

resolutions and recommendations, and I think that this was necessary and a good thing.

But the action programme has also elements in it which are new. Apart from the programme of special measures which I would come to in a moment, it has quite a bit on the whole commodity issue, for example. The Special Session after all was a session on the problem of raw materials and development and it was quite natural that it should focus more sharply on this issue as against the other issues which were also of importance. On the issue of raw materials and development there is scattered throughout the programme of action a number of resolutions which inject a new element into the conventional approach to the commodity issue. The old approach was that, "where appropriate" there might be commodity agreements on a case by case basis – each commodity being taken separately. In the programme of action there is a call for a more integrated, a more comprehensive, approach to the commodity problem. There is a call for an integrated approach to a whole group of related commodities; there is mention of the possibility of producer associations; there is mention of the need to "index" or link the prices of commodities to the prices of manufactured goods; and there is mention of the use of buffer stocks not only for one commodity but perhaps for many commodities. These are new elements that didn't exist before, and there are many others.

So the programme of action does represent quite an important step forward. The problem of course is how all this could be implemented and this is going to be no easy task. On many of these new issues there were reservations by the developed countries, countries which would be called upon to act. So the battle of really convincing everyone and of securing concrete results has still to be fought and won. But the fact that these possibilities have now come down in the form of resolutions passed by the General Assembly creates a new situation, and it creates a new situation for UNCTAD because UNCTAD is really responsible for the whole programme relating to commodities.

Although there is a need for immediate relief by way of financial assistance to the countries most seriously affected

by the present situation, this is not a basic long-term solution. The situation is likely to persist for many years and one cannot see countries living on relief or on grants year after year. Basically, the countries in difficulties are in that situation because they have not earned enough to pay for the higher priced imports they need. It is necessary to look for ways and means of strengthening their export earnings in order to put them in a better position. And this brings us to the whole question of their terms of trade. Now, the experience of the developing countries regarding their terms of trade has been unfavourable right through the 'fifties' and the 'sixties'. In the last year or two, commodity prices have taken an upward course, but this is based on many factors which may turn out to be short lived, and there are many commodities which have not shared in this boom. Tea is a very obvious example of this kind. So there was a need in the context of a special conference on raw materials to look for more basic solutions, and it is in this context as the Secretary-General of the UNCTAD, I called for an endorsement of a new approach to the commodity situation.

I feel that scattered through the programme of action are the elements of a new approach upon which UNCTAD can build in the future. In addition, the programme does make specific reference to UNCTAD and the need to strengthen UNCTAD in order to carry out its responsibilities in the field of trade in raw materials. The programme does not allocate tasks to each of the agencies and institutions of the U.N. system but it has singled out UNCTAD for specific reference in regard to its responsibilities in the field of raw materials. This really does mean that UNCTAD is called upon to make a new effort in this area, and I for one would try to respond to this call by the United Nations in regard to UNCTAD. I do think that UNCTAD has a major responsibility before it as a result of the new emphasis placed in the programme of action.

The second part of the action programme was the programme of Special Measures. This, was of crucial importance. Many of the other goals were of a longer term character which involved work in the future, but there was the immediate situation – an urgent crisis – and this had to be resolved. The real test of the U.N. at the Special Session was whether it

was going to end up with no solution to this immediate problem or whether it would succeed in capturing the constructive spirit which I referred to before and in translating it into a specific programme. I am glad that in the end the General Assembly was able to come out with this special programme.

The key element of the special programme was the decision to set up an Emergency Fund to look after the countries that are most seriously affected by the new situation. A number of developing countries – the figure quoted ranges from 30–40 depending on the definition and the criteria used – are not exporters of oil and have been affected by the increase in the price of oil. But the spokesmen of these countries were at great pains to emphasise – and they were right in doing so – that it was not only the price of oil which has caused them difficulties. For many years they have been at the receiving end of successive increases in the prices of the essential things they import, the prices of manufactured goods food, fertilizers and so on. These have been going up relentlessly year after year as a result of the inflation that has been taking place in the developed countries, as a result of global scarcities in regard to food supplies, and so on. The increase in the price of oil has come on top of these problems and has aggravated them but it was by no means the sole difficulty encountered by the importing countries. The developing countries were therefore very insistent in saying that the remedial measures they required needed to take account of the whole picture and not just the situation created by the rise in the price of oil alone. In pursuance of this there was the feeling that a special Emergency Fund should be set up, contributed to not only by the oil producing countries but also by the developed countries, the socialist countries, and all those who were in a position to help towards meeting the situation faced by the developing countries.

The fact that this was decided upon is in a way a triumph for the U.N. system. I must say that many people were somewhat cautious about the setting up of yet a new Fund, yet a new institution. But I think this was inevitable. There was a feeling that the existing institutions, particularly the World Bank and the International Monetary Fund and perhaps the other lending agencies, were not sufficiently representative,

were not universal enough, in their composition to tackle this situation. After all, if the oil producer countries were to be major donors in the operation, they would not be satisfied to see their funds channelled through institutions in which their voice was not as strong as it might be. This was the problem which faced institutions like the World Bank the International Monetary Fund and there was a feeling therefore that some more representative agency should be set up.

The Special Fund that was being proposed would be set up under the auspices of the United Nations. The resolution calls for an inter-governmental committee of 36 members, representing a due balance of the various interests, to work out the modalities of the Fund, the constitution of the Fund and so on. The intention was to set up a Fund which would be governed by a representative council comprising the oil producing countries, the developed countries and also the recipient countries. This was in a way a new departure in regard to lending institutions – the fact that the recipients would be given a strong voice in the decision-making process. If this succeeds, it may well have a significance for the future in regard to the whole issue of external resource transfers, aid through multilateral institutions, and so on. I think this experiment would, for that reason, deserve to be followed with a great deal of interest from the point of view of the future.

The Special Fund is to get off the ground – to begin operations, that is – not later than the 1st of January 1975. This was in recognition of the fact that time was needed to set up a new body, to draw up its constitution, to set up its governing council, and to get its staff going. But it was also recognised that the crisis was more urgent and immediate and that some countries cannot afford to wait till even 1975. They needed relief here and now; and in pursuance of this, the resolution also provided for an immediate programme to be sponsored by the Secretary-General of the United Nations. The resolution called on the Secretary-General of the United Nations to invite all countries willing to do so to make known, by not later than the 15th of June this year, the contributions they are prepared to make for 1974. In other words, they

were given a two-month period in which to do that. These contributions could take the form of contributions to be made bilaterally, through multilateral institutions, or through the good offices of the United Nations, should they choose to avail themselves of this channel. The Secretary-General of the United Nations has already issued an appeal to a number of prospective donor countries and he is now awaiting their response. Dr. Prebisch, who was the first Secretary-General of UNCTAD, has already been appointed as the chief executive of this emergency operation for 1974. I believe that he has already made contacts and visited a number of potential donor countries, and it remains to be seen what the response to the appeal of the Secretary-General would be.

I should emphasise, however, that the whole of the relief programme needed not be administered by the United Nations. As I said, some of the aid may be given through other channels but an important point in the resolution is that the Secretary-General has been entrusted with the task of “monitoring” the whole process. Whether funds flow through the United Nations or through other channels, it is his duty to make an assessment of the adequacy of the response of the donor countries to the crisis. It would be necessary for him to identify the countries that are most affected and to assess the gaps they face; to then see to what extent these gaps are being filled by assistance provided through other sources; and to estimate what residual needs there are which the United Nations system might be able to fill or which the donors may be called upon to fill. I think this monitoring process is of very great importance. It is a new venture, an innovation for the U.N. and something which is a great portent for the future.

The resolution calls on the Secretary-General of the United Nations, the President of the World Bank, the Managing Director of the International Monetary Fund, the Secretary-General of UNCTAD and the heads of all the other concerned agencies to play a part in this process and to give the maximum of assistance to the United Nations system in this task. I think that it is true to say that all the agencies pledged their support without reservations. The United Nations would be using the data and the expertise of bodies like the World Bank and the International Monetary Fund to make its assessment of

needs and to monitor the whole operation. This in itself is a good augury. It is an example of the whole family of the United Nations trying to act as one and to concert their policies so that the U.N. as a system could speak with a single voice.

**Q:** What would you consider as specially significant in the U.N. Session for a developing country like Sri Lanka? In what way do you think we should or could play a role in focussing attention on the problems we have in common with other developing countries in the current crisis? How do we relate ourselves to the programmes of action which may emerge from the Special Session?

**A:** Well, I think that almost everything that took place, all the themes that were debated and discussed at the Special Session, were of crucial relevance to Sri Lanka. Sri Lanka is a very good example of a country that has been buffeted by the varying fortunes of the international trading system. We have suffered substantial increases in the prices of our essential imports – not only petroleum but food and even manufactured goods. On the other hand, we have not shared in the boom in commodity prices. In particular, the price of tea has been lagging behind the price increases which have favoured the other commodities. I think this is now fairly well recognised throughout the world. The one and only document which the United Nations produced for the Special Session, and which I referred to earlier, did make special mention of the fact that tea was *the* commodity which had the worst experience over the last two decades or so. It is now generally well known that Sri Lanka has been a victim of these forces and has been affected quite harshly.

The remedial measures suggested are also of relevance to Sri Lanka. After all, if there is going to be financial assistance for the countries most seriously affected, Sri Lanka's claims would be very strong indeed, and I hope that this would be reflected in the final action taken. But even more important, the call for a new thrust in the field of commodities is of relevance to Sri Lanka because it is in this field that we have witnessed at first hand the major weakness of the whole international system. The fact that the prices of

our commodities have not increased *pari passu* with the rise in the prices of our imports is a reflection of the weak situation prevailing in many commodity markets. If as a result of this session there is a new programme of action in the commodity field, a programme which would help not only to stabilise but to strengthen the prices of our tea and our coconut products and our rubber, then the Special Session would prove to have been of tremendous significance and relevance to Sri Lanka. For this reason it is very important that Sri Lanka should continue to apply pressure in international forums in respect of the commodity problem, the problem of external resource transfers, and also other relevant issues. I think it is very important that the developing countries stress these issues as strongly as they can.

I have heard many complaints from representatives of the United Nations that it is very difficult, in many cases, to secure the participation of spokesmen of the developing countries, particularly experts at the technical level, in the work of the United Nations. Often where expert groups or intergovernmental groups are convened comprising of representatives of both the developed and developing countries, one finds a well prepared, well briefed and well organised contingent of representatives from the developed countries, not matched by similar strength from the developing countries. To some extent, of course, this is quite understandable. The best people in the developing countries have many pre-occupations within their own governments and societies and are not available to service international bodies all the time. I think it is correct that the developing countries should be very selective about this. But once they decide on the meetings or forums where issues crucial to them are being determined, they should take special care to ensure that they send very good, effective, spokesmen who can really strengthen the stand taken by the developing countries as a whole. I feel that this is going to be very important in the future. If bodies like UNCTAD are to take new initiatives, we would need to see arguments well presented so that the best possible result could be obtained. The developing country's voice needs to be sharp and clear and strong. Otherwise, there is the danger that whilst the developed countries speak in very disciplined and analytical terms, the developing

countries would respond in terms of generalities. This is not a very good thing from the point of view of securing concrete results.

**Q:** In the context of all what you have stated, how do you conceive of the future role of UNCTAD, and its approach to the new themes which have emerged in the Special Session?

**A:** I think it would be right to say that UNCTAD is *the* forum in the whole United Nations system in which issues concerning the international framework for development are discussed and debated. UNCTAD has a bigger membership than even the United Nations itself. It is actually very representative from that point of view. I believe the UNCTAD membership is now 145 countries. Ten years ago, the first Secretary-General of UNCTAD, Dr. Raoul Prebisch, set out on the quest for what he called "a new trade policy for development". He was seeking to establish a global framework which was conducive to the development objective. This called for a series of reforms, a series of changes in existing relationships, trading as well as economic, between the rich and the poor countries. Looking back I think that UNCTAD has many achievements to its credit. It has made progress in many fields. It has, for example, brought about a new system of preferences, a generalised scheme of preferences, relating to imports from the developing countries; it has got endorsement for the global aid target; it has been active in the field of commodities and has brought about an agreement in the case of cocoa – although, by and large, the performance in the commodity field has been an unsatisfactory one; and it has recently brought about a convention, a code of conduct rather, on liner conferences. It has also a number of other achievements to its credit. One has to bear in mind the fact that the impact of UNCTAD cannot be evaluated in terms of what takes place at the UNCTAD conferences alone. The influence of UNCTAD is more pervasive than that. As a result of the pressures exerted at the UNCTAD conferences, as a result of the documentation and the studies of the Secretariat, decisions are taken in other places which have a far reaching impact – in the World Bank and the Monetary Fund in regard to levels of aid, to conditions of aid, to systems of compensatory finance; and in the capitals of the world in

regard to matters of trade and aid policy. When one evaluates UNCTAD, one has to set it in the light of this total picture and not consider only what happens in the UNCTAD forum alone.

Having said that, I think I should also say that if one asks whether we now have a new trade policy for development, the answer must unfortunately be in the negative. We are still some distance from this goal. The developed countries have not responded in the way in which UNCTAD had hoped they would. In many areas there has been a lack of progress. Many resolutions have not been implemented, many targets have not been fulfilled, and in certain areas there has even been retrogression or back-tracking. From that point of view there is still a tremendous task ahead of UNCTAD. I think that UNCTAD needs to continue to apply pressure, needs to continue its efforts to bring about the changes needed for a better international environment for development.

But in the new situation UNCTAD itself would have to adopt new approaches. There has been a tendency to regard UNCTAD as an excellent forum in which to debate general issues but not one in which to undertake concrete negotiations or to do specific pieces of business. I think this should change. UNCTAD should become more of a body in which concrete decisions are taken, in which intricate negotiations are conducted and through which actual reforms are implemented. The concept of UNCTAD as a forum for pressure needs to continue because the developing countries – the so-called 77 – need to keep up the general pressure on the rest of the world in order to bring about the changes that are needed. But I would like to see UNCTAD at the same time become more effective as a body for actual negotiations and actual decision-making. This would of course call for certain changes in the mechanism and the machinery of the UNCTAD conferences, in the way in which resolutions are discussed, the way in which they are presented, the degree of prior negotiations that is entered into and so on. This is a field which should be reviewed in the period to come. It has been said, for example, that a great deal of time is lost at UNCTAD conferences until the group of 77 agrees on a common position on the resolutions that they propose; that

once these resolutions are proposed there is very little time left for negotiation; and that even the very process of negotiation re-opens issues at too late a stage. Problems like this need to be looked at and solutions found if UNCTAD is going to be more effective.

Then again I feel, that in the new situation the developing countries would acquire a new voice in UNCTAD if they develop a greater sense of collective self-reliance. They must be more conscious of the power they have to influence world issues, – their power as producers of commodities for example – and of the need to harness and mobilise these powers in a constructive way. I would, therefore, like to see the whole question of participation in the International System coming out much more forcefully and effectively than in the past. I think we have come to the stage in which supplication and pleadings alone will not do. The developing countries would need to have more power to their elbow, and the developed countries in turn would need to respond to these pressures in terms of a greater awareness of the concept of mutual dependence and international co-operation. If this is achieved then there is a better prospect than in the past for UNCTAD to achieve concrete results.

## SRI LANKA'S NATIONAL ACCOUNTS

Notes for the Regression Enthusiast

ARUN SHOURIE

1. A number of agencies within and outside Sri Lanka use Ceylonese national accounts to assess current developments and view them in the perspective of the past. Small changes are dutifully reported and various sorts of ratios are compiled. These changes and ratios are then compared to the values of similar changes and ratios in the past in Sri Lanka and to the corresponding values for other countries. Various studies have utilized these accounts for time series and cross-country econometric work. Typically macro-regression models relate individual aggregates to other aggregates. In such models, imports, for example, will be broken down into three or four categories and each category will be regressed on some part of gross domestic product on the sources or uses side. Thus imports of consumer goods may be related to disposable personal income or to total consumption expenditure; imports of intermediate goods may be related to value added in sectors such as manufacturing; imports of construction material may be regressed on value added in the construction sector; and imports of capital goods may be "explained" by or may be used to "explain" gross fixed investment in the economy. Over the last few years a number of cross section studies have appeared which set out to explain variations in growth rates, structures of output, patterns of employment and other characteristics of a host of very dissimilar economies. Typically, such studies explain the differences in the characteristics by variables such as per capita income, size, capital inflow, dependence on trade and so on. In using the accounts for time series models and in pooling them for cross country regressions, one should be aware of the ways in which the accounts are put together and of the many puzzles they contain. This note provides a very brief account of the procedures by which different components of the series are put together in Sri Lanka and of a few problems

The series compiled by the Department of Census and Statistics differs from the one prepared by the Central Bank in many ways.

(a) The most important conceptual difference is that while the Central Bank assigns value added in the manufacturing processes of tea and rubber to the manufacturing sector, the Department of Census and Statistics retains the entire value added in tea and rubber in the agricultural sectors' accounts.

(b) The Department's methods of estimating value added in a given sector often differ from those of the Central Bank. The construction sector provides an example. The Central Bank multiplies the imports and domestic production of building materials by 4.47 to obtain value added by the construction sector. The Census Department proceeds in a different way: it first estimates value added in the Government's construction work directly and also estimates the amount of building materials used in this work; from the total availability of building materials (imported and locally produced) it subtracts the amounts used by the Government; the rest, which is assumed to have been used by the private sector, is doubled to obtain value added in private construction work; the total is obtained by adding the Government and private figures. It is hardly surprising then that the value added at current prices by the construction sector differs considerably from one series to another.

Value added in Construction  
(Current prices; factor cost; Rs. million)

	1963	1964	1965	1966	1967	1968	1969
Central Bank	285	306	286	317	380	509	676
		(7.3)	(-6.3)	(10.4)	(19.8)	(33.9)	(26.9)
Department of Census and Statistics	356	383	381	412	470	560	696
		(7.5)	(0.0)	(7.8)	(14.3)	(19.1)	(24.3)

Note: Figures in parentheses give per cent change over preceding year.

Similarly in estimating timber output the Central Bank assumes a trend rate of growth while the Census Department estimates total timber output as  $1\frac{1}{2}$  times the output of timber on crown lands. The procedures used for estimating ownership of dwellings are also different and yet, curiously, in this case the figures of the two series follow each other very closely.

(c) The sources of primary data also differ: for instance, in the case of the manufacturing sector (other than tea and rubber and cottage industries) the Census Department relies on such returns from registered units as are available with the Ministry of Industries and Fisheries while the Central Bank relies on a special survey of selected manufacturing units. In 1970 this survey covered 132 firms.

(d) As Table 2 shows the deflators used by the two agencies differ in many instances.

Apart from the real effects they have on Sri Lanka's economy the numerous price distortions that characterize the economy and the wide fluctuations in the prices of Sri Lanka's exports affect the meaningfulness of the national accounts also. The most significant difficulties arise because of sharp changes in the international prices of tea, rubber and coconut. The accounts assure us that Sri Lanka's GDP at constant prices has been growing at about 4.3% in the last ten years. They obscure the fact that, as the prices of Sri Lanka's major exports declined considerably in this period, net commodity availabilities in the economy grew much less than the accounts at constant prices might indicate. It is indeed misleading to pool the constant price series of countries like Sri Lanka (in which foreign trade is a very large proportion of GDP and in which because of huge losses in the terms of trade, the *constant* price series do *not* portray the evolution of commodity availabilities or "real" growth) with those of countries in which foreign trade is not a significant proportion of total activities or which have not suffered severe losses in their terms of trade. Furthermore, taking Ceylonese estimates by themselves, the failure to allow for changes in the exchange rate and the progressive introduction of Foreign Exchange Entitlement Certificates<sup>1</sup> has dramatic effects on estimates of gross domestic investment: a large part of the very impressive increase of 45 per cent in fixed investment during 1969 was due to the introduction of the Certificates, partly because a significant proportion of Gross Domestic Investment consists of imported capital goods and partly because a large part of the rest is calculated on the basis of imports of capital goods. In addition, the under-

<sup>1</sup> Imports under the Foreign Exchange Entitlement Certificates come in at Rs. 10.76 to the dollar while other imports come in at the official exchange rate of Rs. 6.52 to the dollar.



valuation of the exchange rate affects the estimates of gross domestic savings. Gross domestic savings are calculated as the difference between gross domestic investment and the current account deficit. As the Introduction of FEEC's has increased the estimates of Gross Domestic investment by a greater factor than it has the valuation of all imports in the balance of payments statistics, it has raised the savings figures artificially.

Table 1 indicates that in some instances where estimates are made by contacting the production units, the compiling authorities uncritically accept the figures reported by many production units. This feature and its consequences are brought out most dramatically in estimates of gross investment by the public corporations. As the corporations are few in number and as each of them is owned directly by the Government one would expect that for these corporations at least unambiguous series would be available. Yet towards the end of 1971 the Treasury and the Central Bank were using two widely different series for gross investments in these corporations. The Treasury series is meant to cover financial years and the Central Bank series covers calendar years. This fact alone could hardly account for the large differences in the two series as given below. The fact is that both the Treasury and the Central Bank uncritically accept the figures as reported to them by the Corporations. The accounting systems in the Corporations greatly differ one from the other and, in addition, the Corporations must be using different concepts to report investment figures to the two agencies.

Gross Fixed Investments in Public Corporations  
(Rs. million)

		Treasury Series	Central Bank Series
1965/66	.. ..	210	1965 150
1966/67	.. ..	435	1966 220
1967/68	.. ..	406	1967 187
1968/69	.. ..	563	1968 278
1969/70	.. ..	610	1969 563
1970/71	.. ..	708	1970 437

This brief account – in which questions about the reliability or accuracy of the data have not even been touched upon – suggests a number of morals for users of Sri Lanka's national accounts.

(a) One should be extremely wary of reading much into small changes in items such as the Gross Domestic Product, Gross Domestic Investment and Gross Domestic Savings – aggregates which are the subjects of close scrutiny in the current wave of macro regression models. This is particularly so for years for which provisional accounts alone are available.

(b) In studying changes, rates of growth, etc., one should study changes in the commodity sectors separately from those in the service sectors. Both the commodity and service sectors in turn should be further subdivided into items that are directly estimated, items that are indirectly estimated and items for which trends have been assumed.

(c) As things stand at present the constant price series of countries like Sri Lanka obscures almost as much as it reveals – partly because of the somewhat doubtful relevance of many of the deflators that are used and partly because of the wide fluctuations of export prices. The analysis of changes in GDP at constant prices should be supplemented by estimates, how-so-ever crude they may be, of changes in net commodity availabilities. Moreover, one should be specially wary of pooling the data of countries such as Sri Lanka with that of countries over which movements in the terms of trade do not cast such a large shadow. The foregoing account suggests that pooling is dangerous for an additional reason. It often happens that one cannot formulate an unambiguous rule of putting the figures together even in relation to the most elementary aggregates. Consider for instance, the case of tea, and rubber. Tea, accounts for 55 per cent of Sri Lanka's exports and 10 per cent of its Gross Domestic product. Because of its extremely perishable nature, there is no market for the green leaf of the tea plant. The leaf is processed on the estates and it leaves the estate as a "manufactured" product. The Central Bank, as noted above, partitions the value added in tea production between the agricultural and manufacturing sectors in accordance with the procedure outlined in Table 1. The Department of Census and Statistics, on the other hand, attributes the entire value added in tea growing and tea manufacture to the agricultural sector. The case of natural rubber is no different: the Central Bank apportions the value added between agriculture and manufacturing while the Department of Census and Statistics attributes the entire amount to the former.

While the rationale for one convention may be no stronger than for the other, the difference does (rather – if the cavalier attitude to the national accounts is any guide – should) inconvenience the econometrician who is trying to “explain” cross-country variations in the structure of production or employment. He can either rely on the convention of the Department of Census and Statistics and assume that the “manufacturing” sector accounts for about 9.5% of Sri Lanka’s GDP or he can use the Central Bank’s accounts as they are and assume that the share (at 13.5%) is 45% higher.

(d) The optimism of the time series enthusiast should be somewhat dampened by the fact that even in the final accounts for a year one third of GDP (not counting tea and rubber) is estimated indirectly (i.e. each item is taken as a multiple of other items) and about one-seventh is simply assumed to grow at a trend. The reason for drawing attention to the role that trends and indirect estimation play is not to assert that these procedures render the accounts unreliable. Indeed, as has been noted above indirect sources may well be very appropriate in many cases. The reason is that unless he is careful the time series enthusiast may well find himself regressing a variable on another variable (for instance, value added in construction on the imports and domestic production of construction materials) from which the former was estimated in the first place. In such cases the regressions will accomplish no more than to rediscover the assumptions used by the Central Bank or the Census Department and the impressive t-ratios and coefficients of determination may record no more than the fact that these agencies have used these assumptions consistently for a number of years.

#### Editorial Note

*Although Arun Shourie’s article was written in 1972, his criticisms are still valid and underscore the need for an urgent effort at improving our national accounts as well as the national system of data collection. His article has in fact acquired a special interest and topical relevance in the light of the critical remarks made by the Minister of Finance in his recent Budget Speech where he expressed his scepticism of our national income data in the colourful phrase: “tendentious statistical gerrymandering”. However, as the writer himself remarks, the article does not set out to assert that the procedures adopted invariably rendered the accounts unreliable.*

*Some of the procedures “may well be very appropriate in many cases”. But without doubt numerous components in the national accounts could be estimated through more reliable methods and the base data with which some of the computations are made could be up-dated.*

*Relevant to this discussion is another intriguing piece of national accounting done by the IBRD in their estimate of the per-capita income in Sri Lanka. In the World Bank Atlas which is published annually and contains national income data for almost all countries in the world, the per capita income for Sri Lanka in 1971 is shown as US\$100 in the 1973 publication. The same IBRD document reported Sri Lanka’s per capita income as US\$160 in 1967 and US\$180 in 1968. This drastic reduction in the per capita income does not denote any catastrophic decline in our national product. It is only the outcome of a new method of computation which the IBRD has adopted in the case of Sri Lanka. The IBRD has decided that a more “realistic” rate of exchange should be adopted when converting the rupee value in Sri Lanka to US dollars. In the past the conversion has been done at the official rate of exchange. According to the IBRD calculations for 1971, the GNP value of Rs. 12765 million, at current market prices, has been converted into a GNP of 1200 million US dollars. The rate of conversion has apparently included the FEEC rate and is approximately Rs. 10/- to a US dollar. The basis of this conversion however, is highly questionable. The conversion rate inclusive of FEECs does not apply to all our imports and exports and the domestic market will therefore not reflect a uniform rate of exchange. The import content of our GNP in 1971 was not more than about 22%. Furthermore, our major export commodities continue to be valued at the official rate, and the market prices at which the value added on these items enter into the GNP calculations will reflect that rate. If the FEEC system were removed and a single exchange rate of Rs. 10/- to a dollar adopted, this would in effect be a significant devaluation which would have resulted in an overall increase in domestic prices, and would have raised the value of GNP at current market prices. It is not clear whether the IBRD conversion has taken all these aspects into account. It has been argued by our monetary and planning authorities that FEECs is not a component of our exchange rate. Rather, it is in the nature of a tax on the purchase of foreign exchange and a premium on the sales.*

On the IBRD calculations, the Sri Lanka per capita income drops to a level close to the per capita income of Nepal which as given in the World Bank Atlas is US\$90 for 1971. The mid-1971 population of Sri Lanka as given in the World Bank Atlas is 12.8 million and the population of Nepal is 11.28 million. A broad comparison of the output, product structures, the modern capital stock and the levels of urbanisation of the two countries suggests that there is a considerable gap in the per capita income in favour of Sri Lanka. In fact, in the 1970 World Bank Atlas, the Sri Lanka per capita income was more than double that of Nepal. While it is true that the output of the two economies would have to be compared in detail before we come to any firm conclusions, the first appraisal raises serious doubts regarding the value of the 1971 GNP in Sri Lanka as given in the World Bank Atlas.

Marga would welcome any contributions from its readers on the issues that have been raised in Arun Shourie's article and this note.

TABLE 1  
Estimation of value added in current prices (1)

	Direct Estimation			Indirect Estimation		A Trend is assumed for (1)						
	1	2	3	4	5	6	7	8	9	10	11	
I. Agriculture, Forestry, Hunting & Fishing												
1. Tea & Rubber (growing)	X		?									(4)
2. Coconuts												(4)
(a) Growing												(4)
(i) Exported												(4)
(ii) Domestically consumed												(4)
(b) Cadjans												(4)

VAA = (Value of labour in growing plus (1) of export taxes) plus (2 of "profits")

Export taxes divided equally between growing & manufacturing

1953  
1963

TABLE 1 (contd.)

	1	2	3	4	5	6	7	8	9	10	11
(c) Coconut husks				Same as number of nuts from item 2 (a)						Value of husk = 7%; 10% of husks wasted; VAA = 70% of value of husks	
(d) Toddy	X		?								
3. Minor Export Crops					Customs returns						(4)
4. Paddy	X		?								(4)
5. Subsidiary Food Crops											(5)
(i) Grains, pulses & root crops	X		?				X	X		Eye estimates of grama sevakas	(4)
(ii) Vegetables and fruit, betel and arecanut				4% of value of other crops							(4)
(iii) Other agricultural crops											(4)
6. Govt. Agricultural Services		X									(5)
7. Forestry						1953					
(a) Firewood											
(i) Domestically consumed				% of output of selected industries							
(ii) Used by industrial establishments											
(b) Timber						1953					
(i) Household Furniture											
(ii) Govt. and business furniture				‡ of - 7(b. i)							

TABLE 1 (contd.)

	1	2	3	4	5	6	7	8	9	10	11
(iii) House Building				% of value of buildings constructed							
(iv) Plywood tea chests											(5)
(v) Other plywood											
(vi) Electric posts	X		?					X			
(vii) Safety matches	X		?								
(viii) Cane furniture							1963				
8. Livestock	X		?	X			X			Mixture of methods for different items X	(5) (5)
9. Fishing											
II. Mining & Quarrying											
1. Salt	X		?		Customs Returns						(4) (4)
2. Graphite											
3. Limestone, clay, etc.									X		Same rate of growth as Construction
4. Metal, sands, etc.					% of value of buildings constructed						
5. Hemimite & gems					Customs Returns						1970 Output

TABLE 1 (contd.)

1 2 3 4 5 6 7 8 9 10 11

## III. Manufacturing

1. Tea and Rubber	X	?								VAA=(Value of labour in manufacturing) plus 1/3 of export taxes) X plus 1/3 of "profits") (4)
2. Coconuts										X Figure is increased by 5% to allow for unregistered millers (4)
(f) Coconut oil										X (4)
(ii) Dessicated coconut										
(iii) Poonac										
3. Factory Industries	X	132 firms out 1952 registered firms								(4) For output of public corporations and (5) for private factories: assumed that private sector output will not change as import allocations were kept at 1969 level. 25% increase
4. Cottage Industries										X

TABLE 1 (contd.)

1 2 3 4 5 6 7 8 9 10 11

- (i) Textiles  
(ii) Other

1953

"Adjusted for changes in wages since 1953"

## IV. Construction

(a) Building											To allow for Rate of 3 months lag; growth of 1/4 of last year's cement & 1/4 of this output year's imports are used
(b) Installation of machinery					4.47 times (CIF value of imported building materials plus locally produced building(2) materials)						Other impor- Same level ted machinery as 1970 & locally produced machinery is not included
					30% of CIF value of imported heavy machinery only						Growth rate same as that of 1960-1970

## V. Electricity, Gas, Drainage &amp; Water Supply

X

## VI. Transport, Communication &amp; Warehousing

(a) Railway, CTB, Air Ceylon, P &amp; T, Port Commission

X

(b) Taxis, lorries &amp; road haulage

(No. of vehicles) x (estimated net earnings per vehicle)

(5)

TABLE 1 (contd.)

1 2 3 4 5 6 7 8 9 10 11

## (c) Other Transport

30% of (Retail value of imports minus CIF value of imports) plus 30% of (Retail value of domestically produced goods minus their ex-factory prices)(3)

Price differences are reduced by differing ratios to correspond to value added. Coverage of goods is unclear.

## VII. Wholesale and Retail Trade

70% of (Retail value of imports minus CIF value of imports) plus 70% of (Retail value of domestically produced goods minus ex-factory prices) (3)

Price differences are reduced by differing ratios to correspond to value added. Coverage of goods is unclear.

## VIII. Banking &amp; Insurance ... X

(5)

## IX. Ownership of Dwellings (6)

TABLE 1 (contd.)

1 2 3 4 5 6 7 8 9 10 11

## (a) Rents of urban dwellings

## (i) Colombo

Assessed value of buildings obtained from local authorities

30% of value of buildings in Colombo area.

30% allowance for under-estimation. It seems that the value of buildings is assumed to grow more or less by a trend rate - at least in some years.

Trend rate of growth

## (ii) Municipalities

20% of value of buildings in other municipalities

## (iii) Urban councils

15% of value of buildings in urban councils

## (iv) Town councils

10% of value of buildings in town councils

TABLE 1 (contd.)

1 2 3 4 5 6 7 8 9 10 11

(b) Rural rents					Rural rent per head is taken as 20% of rents per head in urban areas except Colombo							
(c) Rents of urban & rural Commercial buildings					25% of total urban & rural rents							
X. Public Administration and Defense	X											Trend rate of growth
XI. Services												Trend rate of growth
(a) Education, health, broadcasting, meteorology	X											
(b) Professional and institutional services					Data from Department of Inland Revenue							
(c) Other services						1953						"Adjusted for changes in wages since 1953"

TABLE 1 (contd.)

(1) Entry in table indicates base year for which consumption (e.g. consumption per head) was originally estimated.												
(2) Basis of the 4.47 multiplier: Survey of Private Investment, 1963, Central Bank.												
(3) Basis of (30:70) ratio: Survey of Distribution, 1951, Department of Census and Statistics.												
(4) The same basis as for final estimates except that data for first eight months was used along with the assumption that the share of value added in the last four months in the year's total will be the same as in 1970.												
(5) Ad hoc assumptions on the basis of general, circumstantial evidence.												
(6) The Central Bank figures for "ownership of dwellings" very closely parallel the figures of the Census Department. The latter obtained the average rents per housing unit from the Census of Population and Housing, 1963, and the Socio-Economic Survey, 1969. For the intervening years the Department assumed that average rental values grew at a fixed rate. The number of housing units was also estimated from the Housing Census of 1963 and that estimate is updated in a manner that is not very clear. The per cent increase over the previous year in value added from "ownership of dwellings" is as follows:												
Department of Census and Statistics	..	..	..	..	..	7.5	7.3	7.2	7.3	8.1	7.9	
Central Bank	..	..	..	..	..	5.7	6.9	6.8	6.0	9.9	6.2	
(7) Parts of the table are incomplete. Additional information is being collected.												

TABLE 2

Deflators used for obtaining constant price series (1)

SECTOR/ITEM	DEFLATOR
1. Agriculture, forestry & fishing	
Tea	Output index
Rubber	Output index
Coconut	Output index
Toddy	Output index
Coconut husks	Output index
Cadjans	Output index
Subsidiary crops	Cost of living index: subsidiary food crops
Fruits and vegetables	Cost of living index: fruits and vegetables
Livestock	Output index
Cotton	Output index
Tobacco	Cost of living index: tobacco
Betel and arecanuts	Cost of living index: betel and arecanut
Sugar	Output index
Minor export crops	Export volume index
Government agricultural services	Wage index
Planting and replanting	Wage index of workers in agriculture
Fishing	Output index
Paddy	Output index
Medicinal herbs	Population index
Spices—local consumption	Cost of living index: vegetables
Hides	Output index
Agricultural services of Corporations	Output index
Forestry	Wage rate index of workers in agriculture
2. Mining & quarrying	Wage rate index for workers in industry & commerce
3. Manufacturing	
(a) Manufacturing	Cost of living index: domestic group (weighted index of ex-factory prices)
(b) Tea, rubber & coconut - processing	Output index

TABLE 2 (contd.)

4. Construction:	Cost of living index: domestic group (Cost of Living index and an index of cost of constructing a unit of floor space)
5. Electricity, water & sanitary services	Wage rate index of Govt. technical & clerical employees (For electricity & gas: indices of electricity & gas produced)
6. Transport, storage & communication	Wage rate index of all Central Government employees
Railway	Wage rate index for workers in industry & commerce
Ceylon Transport Board	Wage rate index for workers in industry & commerce
Air Ceylon	Wage rate index of all Central Government employees
Post & Telecommunication	- do -
Port Commission	- do -
Motor cars & Lorries	- do -
(Passenger Transport:	Wage rate index for workers in industry & commerce
(Goods Transport:	Indices of passenger mileage of omnibus & railway services
(Post & Telecommunication:	Nos. of hiring cars & private cars)
7. Wholesale & retail trade	Index of goods train mileage, Index based on the No. of lorries, Quantity index of ships entered and cleared at all ports of Ceylon)
8. Banking, insurance	Combined weighted index of the No. of letters, parcels and telephons calls made)
9. Ownership of dwellings	Cost of living index: Domestic Group (Wage rate index for workers in industry and commerce)
10. Public administration and defence	Wage rate index for workers in industry and commerce
11. Services	Cost of living index: Domestic Group (Index of urban and rural rental workers)
Education & health	Wage rate index of all Central Government Employees. (Index of no. of employees)
Other Govt. services	Cost of living index
Domestic & hotel services	Indices of the No. of employees in these services
Professional services not subject to tax	Wage rate index of Govt. employees
Personal services	Colombo Cost of Living index
	Wage rate index

(1) The deflators used by the Central Bank are shown first. If the deflators used by the Department of Census and Statistics differ from the ones used by the Central Bank, they are shown in parentheses.



## HOUSING DEVELOPMENT IN SRI LANKA 1953-71\*

HUGH KARUNANAYAKE

The national housing census of 1953, 1963 and 1971 gives an enumeration of housing units in the country at the time of each census. They also provide data which reflect the more important aspects of housing conditions such as the rural/urban location of housing units, their structural characteristics, the conditions of tenure and occupancy, and their facilities. These indicators of housing conditions render possible a qualitative and quantitative assessment of the housing stock at a particular point of time. This paper attempts to use the census data to make a comparative study of housing conditions during the years 1953, 1963 and 1971 in order to examine any qualitative changes that may have occurred in housing during the period 1953-1971. It also attempts to examine the quality of housing units which were added to the housing stock during the intercensal period and thereby evaluate the trends of housing development during the period under reference.

The statistical material used in this paper has been derived from the census data of 1953, 1963 and 1971, published by the Department of Census and Statistics. Since the concepts and terms used in the presentation of data, appear to have varied in certain respects in the three censuses, care has been taken to utilise only such material as were comparable. In some instances, however, where statistics essential to the central theme of this paper were

\* This paper is an abstract from Chapter III of a monograph on Housing in Sri Lanka prepared by the Marga Institute as part of a Regional study of Low Cost Housing in South East Asia, sponsored and financed by the Canadian International Development Research Centre, Ottawa.

available but rendered incomparable due to variations in definition, the data were adjusted to enable comparison. Specific mention has been made of the basis of adjustment in all such instances. One principal assumption made in this study is that a "household" referred to in the census of 1953 is equivalent to what has been termed as an 'occupied housing unit' in 1963 and 1971, since most of the data relating to housing in 1953 were classified on the basis of household units.

The incremental housing stock has been estimated as the difference in aggregate stock between two censuses and must necessarily be a crude estimate of the real increment. In using this estimate it has to be recognised that several factors such as the replacement of obsolescent houses by housing of different types, additions and alterations to housing during the intercensal period which may reflect housing of a particular type in a census as of another type in a subsequent census, are not taken into account. It is assumed, therefore, that the original housing stock had not undergone change in type or constructional pattern during intercensal periods. This would mean that housing units which have been demolished due to obsolescence during an intercensal period are assumed to have been replaced by units of the same type during the intercensal period.<sup>1</sup> The increment to housing which will be subject to analysis in this paper will, therefore, be the gross addition to stock. The analysis of the incremental stock is confined to the study of changes in aggregate housing units, structural types, principal materials of house construction, and conditions of tenure and occupancy. Statistical data used in reference to the rural sector in 1971 are the combined figures for the rural and estate sectors.

### Changes in Housing Stock

As shown in Table I there has been an overall increase of 45.5% in occupied housing units during the period 1953-71. The

1. The rate of obsolescence is estimated at around 65,000 units per year during the period 1963-71. According to the census of 1917, 1,021,578 units were constructed during the period 1961-71. On this basis the number built during 1963-71 is estimated at 810,000. If this is added on to the stock of 2,118,032 (derived by inflating the No. of Occupied housing units in 1963 by the vacancy ratio) standing as at 1963 we should have a gross stock of 2,928,000 units in 1971. Since the housing stock in 1971 is 2,382,001 units, it would mean that 540,000 units were taken off the housing inventory during the eight years 1963-71 due to obsolescence.

**TABLE I**  
Housing Development 1953-71

Year	Housing Units		Percentage Increase in stock			
	1953	1963	1971	1963 over 1953	1971 over 1963	1971 over 1953
Sri Lanka	1,523,695	1,971,740	2,217,418	29.4	12.4	45.5
Urban	183,336	318,140	421,155	73.5	32.3	129.7
Rural & Estate	1,340,359	1,653,600	1,796,323	23.3	8.63	34.01

Source: Census of Housing 1971.

increase in population has, however, been 56.9% during this period, which indicates that the rate of increase of population has exceeded the rate of increase of the housing stock. The rate of increase of the urban population<sup>2</sup> and the urban housing stock has, however, been consistent at 129.3% and 129.7% respectively. Rural housing on the contrary has shown a growth rate of 34.01% compared to the population increase in the rural sector which has been 43.9%

#### The Period 1953-63

An analysis of the changes which occurred during the intercensal period indicate that there was a 29.4% increase in housing stock during the decade 1953-63. This rate is consistent with the 30.7% rate of increase in population during the same period. The rate of increase in the urban and rural sectors also shows consistency between housing growth and population growth. Urban housing increased by 73.5% as compared to a population increase of 70.7%. Rural housing grew by 23.3% in comparison

- For the purpose of the census, all areas which came under the administration of Municipal Councils, Urban Councils and Town Councils were considered urban areas and the rest as rural. The unit of local administration in the rural area is the Village Council. Village Councils are upgraded to Town Councils on the basis of such factors as population density, availability of housing amenities and the size of the commercial area. There were for instance 37 Town Councils in the 1971 census which were Village Councils in the 1963 census. These had an approximate population of 420,000 and would contain around 70,000 housing units (calculated on a mean occupancy rate of 6 persons per housing unit). Urban housing growth as discussed here is likely to be overstated to this extent. The over-emphasis here is likely to be cancelled out by the under-estimation of areas which are urbanised but have not been upgraded to town council status. It must also be noted that the very basis on which village councils are upgraded to town councils postulates that only the better facilitated rural units secure subsequent classification as urban units, thereby enhancing the quality of the urban housing stock whereas the rural housing stock keeps on losing its best units to the urban areas through the process of upgrading.

**TABLE II**  
Population Growth 1953-71

Year	1953	1963	1971	1963 over 1953	1971 over 1963	1971 over 1953
Sri Lanka	8,097,800	10,582,064	12,711,143	30.7	20.1	56.9
Urban	1,239,100	2,116,285	2,842,077	70.7	34.3	129.3
Rural & Estate	6,858,700	8,465,779	9,869,066	23.4	16.6	43.9

Source: Census of Housing 1971.

to a population increase of 23.4%. This period therefore indicates that the rate of population increase had kept pace with the rate of increase in housing in both urban and rural areas.

#### The Period 1963-71

This period shows a slowing down in the rate of increase in housing from 29.4% to 12.4%. During 1953-63 there was an increment of 448,045 units whereas in 1963-71 the addition was 245,738 units. This works out to an annual rate of increase of 2.9% during 1953-63 and 1.5% in 1963-71. A similar decline in growth rates is evident in the urban and rural sectors. When compared with population increase there is a significant shortfall in the all-Island rate where housing had increased by 12.4% in comparison to population which increased by 20.1%. The rate of increase of the urban housing stock, however, which was 32.3% had fallen short of urban population increase by a mere 2.0%. Rural housing on the other hand had increased by 8.63% as compared to a population increase of 16.6%. An overview indicates, therefore, that there has been a far greater imbalance between the rate of population increase and housing development in rural areas than in urban areas.

As detailed in Table III in 1953, 12.03% of the housing stock was located in the urban sector and the balance in the rural sector. The urban share of total population was 15.3% in 1953. In 1963 the urban sector's share of housing increased to 16.13% and increased further in 1971 to 18.9%. Rural housing on the other hand progressively declined in its share of total housing.

#### Changes in Structural Type

The three housing censuses have classified housing units into three types, permanent, semi-permanent and temporary. The classification has been made on the basis of the principal materials

TABLE III  
Housing units classified by structural type - 1953-71

	1953			1963			1971		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
No. of Housing Units	1,523,695	183,336	1,340,359	1,971,740	318,140	1,653,600	2,217,478	421,155	1,796,323
Percentage	100	12.03	87.9	100	16.13	83.86	100	18.99	81.0
No. of Permanent Housing Units	531,683	116,728	414,955	614,200	195,910	418,290	785,949	264,787	521,162
Percentage	34.89	63.6 <sup>A</sup>	30.9 <sup>B</sup>	31.1	61.6 <sup>A</sup>	31.1 <sup>B</sup>	35.4	62.8 <sup>A</sup>	29.0 <sup>B</sup>
No. of Semi-permanent Housing Units	890,131	55,973	834,158	1,253,580	89,310	1,144,270	1,271,232	118,368	1,152,864
Percentage	58.4	30.53 <sup>A</sup>	62.2 <sup>B</sup>	62.6	28.1 <sup>A</sup>	62.6 <sup>B</sup>	57.3	28.1 <sup>A</sup>	64.1 <sup>B</sup>
No. of Temporary Housing Units	101,881	10,635	91,246	123,960	32,920	91,040	160,297	38,000	122,297
Percentage	6.6	5.8 <sup>A</sup>	6.8 <sup>B</sup>	6.3	10.3 <sup>A</sup>	6.3 <sup>B</sup>	7.22	9.0 <sup>A</sup>	6.8 <sup>B</sup>

A. Percentage of total urban stock.

B. Percentage of total rural stock.

Source: Census of Housing 1953, 1963, 1971.

used in the construction of the walls, roof and floor. Where such materials are durable like cement, brick, tile, asbestos, metal or wood, the houses have been referred to as of permanent type. Where walls were made of cadjan, palmyrah, or other inferior and non-durable material, the house was classified as temporary. Where a mixture of both durable and non-durable materials have been used, they have been classified as semi-permanent.

These classifications are broad-based and somewhat loose, and changes in the quality of housing taking place within a single type especially in the semi-permanent category (which embraces a wide combination of materials of construction) cannot be identified. For instance, a house with a mud floor, mud walls, and metal roof will be considered semi-permanent. The addition of brick walls in place of mud walls will not change its classification as such a structure is also classified as semi-permanent. The movement in the patterns of house construction cannot be too easily recognised, therefore, as the shift from one structural type to another is not clearly discernible. The ensuing analysis will, however, endeavour to bring out the broad changes in the typology of housing which indicate the trends in housing development during the period. More specific indicators of quality are found in the materials of construction of the walls, roof and floor. The analysis of the housing stock by materials of construction will be found in an ensuing section of this paper.

In 1953 the total housing stock consisted of 34.8% permanent houses, 58.4% semi-permanent, and 6.6% temporary houses. In 1963 the share of permanent houses declined by 3.7%, semi-permanent housing went up by 4.2% and temporary housing moved down slightly by 0.3%. The overall composition of the housing stock thus does not show much change from the position as at 1953. If we take a look at the increment to the stock, however, a clearer indication of the development during the decade is seen. The increment to the stock during 1953-63 was 448,045 units consisting of 82,517 permanent, 343,449 semi-permanent, and 22,079 temporary units. These constituted 18.5%, 76.6% and 4.9% respectively of the addition to the stock. Of the 82,517 permanent units, 79,182 or 95.9% were in the urban sector and only 4.1% in the rural sector. Of the 343,449 semi-permanent units, 310,112 or 90.2% were in the rural sector and 9.2% in the

TABLE IV  
Housing Units added to Stock in 1953-1963

	Permanent Housing	Percentage	Semi-Permanent	Percentage	Temporary	Percentage	Total	Percentage
Urban	79,182	95.9	33,337	9.8	22,285	100.9	134,804	31
Rural	3,335	4.1	310,112	90.2	- 206	- .9	313,241	69
Sri Lanka	82,517	100.0	343,449	100.0	22,079	100.0	448,045	100
Percentage	18.5		76.6		4.9		100	

TABLE V  
Housing Units added to Stock in 1963-1971

Urban	68,877	40.1	29,058	77.1	5,080	13.9	103,015	41.9
Rural	102,872	59.9	8,594	22.9	31,357	86.1	142,723	48.1
Sri Lanka	171,749	100.0	37,652	100.0	36,337	100.0	245,738	100
Percentage	69.9		15.3		14.8		100	

Source: Derived from Census data, 1953, 1963, 1971.

urban sector. The output of temporary housing was low during this decade. The urban sector had, however, a comparatively high share of the incremental stock of temporary housing amounting to 100.9%. In numerical terms, however, this amounted to 22,285 units out of a total urban output of 134,804 which forms 16% of the urban output, whereas permanent units were 58% and semi-permanent units 24% of total urban output.

The overall trends in housing development during this decade indicate that housing investment in urban areas was largely on permanent housing, whereas in the rural sector semi-permanent housing had been preferred. Temporary housing had been a feature exclusive to urban housing growth during this decade and accounts for a share of the post-war proliferation of shanties in the city area. The period 1953-63 represents the early stages of self-government in Sri Lanka during which the economy seemed to be moving away from the colonial dualist model and asserting itself to development-oriented policies. Some key structural characteristics of the economy underwent change which tended to break the sharp dualism. The traditional sector, for instance, assumed a new role as food supplier to the modern sector. With increased inter-sectoral flows, more money and goods went into the traditional sector. This could be seen in the transition in housing construction in the rural sector which progressed from the use of traditional materials of construction such as mud and cadjan, to materials of a more durable nature. During this period 99% of the rural incremental stock consisted of semi-permanent units which contain a considerable element of durable materials. It is also interesting to note that 30.9% of the incremental stock was located in the urban sector as compared to the overall 12.03% urban share of the housing stock in 1953. The increment to the stock during this period consisted of 134,800 units in the urban sector and 313,241 units in the rural sector. This represents a 73.5% increase in the urban stock as compared to a 23.3% increase in the rural stock.

By 1971, the share of permanent houses in the total housing stock had risen by 4.3% to 35.4%. Semi-permanent housing as a component of total housing declined by 5.3% to 57.3% in 1971. Temporary housing, however, occupied a greater share of the housing stock, having risen from 6.3% in 1963 to 7.2% in 1971.

The addition to stock in the period 1963-71 was 245,738 units which gives an annual average increment of 44,804 during the previous decade. The addition of 245,738 units was made up of 103,015 units in the urban sector and 142,723 units in the rural sector. The urban output consisted of 41.9% of the incremental stock and constitutes a remarkable effort compared to the 30.1% share during the previous decade.

The increment to the national stock during 1963-71 consisted of 171,749 permanent units, 37,652 semi-permanent units, and 36,337 temporary units. These constituted 69.9, 15.3 and 14.8% of the new stock. Of the 171,749 permanent units, 68,877 or 40.1% were in the urban sector, and 102,872 or 59.9% in the rural sector. Of the 37,652 semi-permanent units, 29,058 or 77.1% were in the urban sector and 8,594 or 22.9% in the rural sector. Of the 36,337 temporary units 5,080 or 13.9% were in the urban sector whereas 31,357 or 86.1% were located in the rural areas.

Of the 103,015 units added to the urban sector, 68,877 or 66.8% were permanent, 29,058 or 28.2% were semi-permanent and 5,080 or 4.9% were temporary. The 142,723 units added to the rural sector consisted of 102,872 or 72.1% permanent, 8,594 or 6.02% semi-permanent and 31,257 or 21.9% temporary units. The urban as well as the rural output during this period consisted largely of permanent units. The sharp increase in the number of permanent units added to the rural stock during this period indicates the accelerating pace of development in the rural sector which was rapidly breaking away from the patterns of house construction based on the use of traditional non-durable material.

An overview of housing development during the period 1963-71 shows a more rapid growth of urban housing and a declining rate of growth of rural housing. Another remarkable feature is the trend towards permanent housing in the rural sector which progressed from a 4.1% share of the incremental stock in the previous decade to 59.9% during the subsequent period. The trend in the urban sector was also towards permanent housing which constituted 40.1% of the incremental permanent stock. The share of permanent housing in the increment to urban stock dropped steeply, however, from 95.9% to 40.1%. A similar decline in the stock of semi-permanent housing is shown in the rural sector which dropped from 90.2% to 22.9%. Temporary housing has

also shown a rural bias during this period, rising from a negative quantity during the previous decade to 86.1% of the incremental stock of temporary housing. Whilst the increase in temporary housing units reflects the growing inability of the lower income groups to meet their housing requirements adequately, the distinct trend in both urban and rural sectors towards improvement in the quality of housing as shown by the overall preference for permanent housing indicates a gradual improvement in the standards of living.

#### **Trends in Constructional Patterns**

The foregoing analysis supplies a rough indication of the trends in housing development during the 18 years under reference. It shows that the quality of housing as determined by criteria of the three structural types has improved considerably. In addition to the overall structural typology of the housing stock, the three censuses provide data on the type of material used for the construction of walls, floor and the roof of the housing stock. These are more specific indicators of improvement or decline in the quality of housing and are used in the following analysis. In the data provided in the census of 1971, the housing units classified by materials of construction of walls, roofs and floor, included vacant houses whereas in the previous censuses the data refer only to occupied housing units (subject to the assumption relating to the 1953 data). In order to render the data comparable, the 1971 figures were deflated by the vacancy ratio.

#### **Wall Construction**

In 1953 the country's housing stock consisted of units, 56.7% of which were constructed with mud walls, and 34.9% with walls of brick, stone, cement, concrete or cabook. In 1963 the share of houses with mud walls had dropped to 50.3% whereas walls constructed with permanent materials such as brick, cement, stone, or concrete had risen to 42.6%. By 1971 the share of mud walls had fallen to 45% while walls of permanent materials had risen to 44.5%. The share of cadjan or palmyrah leaf as a material of wall construction has varied at the three censuses.

An analysis of the materials used in the construction of walls in the incremental housing stock during the periods 1953-63 and 1963-71 appears in Table VII. Of the 448,045 houses that were constructed in Sri Lanka during the period 1953-63, 68.8% were

built with concrete, brick, stone or cabook walls and 28.8% with mud walls. This indicates a demand for permanent housing during this period. In the urban sector 58.1% of the incremental stock was built of cement, brick, concrete, stone or cabook walls. The corresponding figure for the rural sector was 73.4% which is relatively high. It means that semi-permanent housing which was the predominant structural type in the rural sector during this period, had walls of permanent material. Houses with mud-walls made up a fair proportion of the incremental housing stock with 25.7% in the urban sector and 30.1% in the rural sector.

Houses constructed during the period 1963-71 contained 59.3% concrete, brick, stone, cement or cabook walls, 10.3% mud walls and a relatively high proportion of cadjan walls amounting to 6.1% compared to 1.1% in 1953-63, which suggests an increase in temporary units and the proliferation of shanty structures. Material classified as "other" went to form the walls of 24.2% of the incremental stock during this period and indicates the increasing use of wood, hardboard and other semi-permanent material. The use of similar material in the previous decade amounted to only 3.5%. In the urban sector the use of cement or allied permanent material for wall construction shows an increase from the previous decade rising to 64.3%. The rural sector on the other hand shows evidence of decline in the use of such material from 73.4% in the previous decade to 56.4%. The use of material classified as "other" has also shown a significant increase both in the urban and rural sectors, rising in the urban sectors from 11.7% to 26.6%, and in the rural sector from .06% to 22.8%. Residential construction during this period also seem to indicate the increasing use of cadjan and palmyrah especially in the rural areas where the proportion of cadjan walls in the incremental stock has risen from - 3.6% to 6.3%. Prominent trends in wall construction may be summed up as follows.

#### 1953-63

1. An overall high rate of use of permanent construction materials such as cabook, brick, concrete, cement and stone for walls.

2. The steady popularity of mud as a material of wall construction.

3. The decreasing use of cadjan or palmyrah in the rural areas.

#### 1963-71

1. A decline in the use of permanent materials, especially in the rural areas.

2. Decline in popularity of mud walls, especially in the urban areas.

3. The increasing use of "other" material both in urban as well as rural areas.

#### Roof Construction

In 1953, 47.1% of the housing stock had roofs of cadjan or palmyrah; 38.7% had tiled roofs; and 11.6% had roofs of zinc or other metallic material. Asbestos-cement roofing was used only on 0.8% of the housing stock. In 1963 the housing stock showed roughly the same proportion of cadjan roofs, a decline in the number of houses with tiled roofs, and an increase in asbestos-cement and zinc roofs. The relevant table gives the incremental housing stock during the periods 1953-63 and 1963-71 analysed by material of roof - Table IX.

As shown in this table, of the 448,045 houses added to the housing stock during the period 1953-63, the largest proportion amounting to 48.7% had cadjan or palmyrah roofs. Zinc roofs were next in popularity amounting to 28.6% of the incremental stock. Tile roofs amounted to 21.1% of the incremental stock, and asbestos had a share of 6.6%.

The urban sector in which 134,804 housing units were constructed during the period showed a preference for tiled roofing which amounted to 39.8% of the houses built. Cadjan roofing formed 31.6% and zinc roofing 20.4% of the incremental urban housing stock. Asbestos cement-sheet roofing was used on 10.2% of the additions to urban houses. The use of asbestos cement-sheet for roofing increased by 500% since 1953. 313,241 houses were constructed in the rural sector during the decade 1953-63, of which 13.1% had tiled roofs, 56.1% had cadjan roofs and 32.2% zinc roofs.

The period 1963-71 witnessed a sharp increase in the use of asbestos cement-sheets as roofing material. It had risen from 6.6% to 33.4% of the incremental stock. Tiled roofs too had increased from 21.1% in the previous decade to 32.5% during the subsequent period. The use of cadjan as a roofing material had declined considerably from 48.7% during the period 1953-63 to 11.7% during the period 1963-71. The latter period also witnessed a strong urban preference for asbestos cement roofing which had risen to 33.4% from 10.2% in the previous decade. This represents a 195.9% increase since 1963. It is evident that asbestos cement sheets and tiles are fast replacing cadjan roofing in rural areas, moving up from 13.1% and 5.0% respectively in the first decade to 40.2% and 30.4% in the subsequent period. Cadjan roofing in the rural sector had declined from 56.1% to 27.0%.

The prominent trends identifiable in the use of roofing material during 1953-71 may be summed up as follows:

#### 1953-63

1. A high preference for tile and asbestos in the urban sector, and cadjan in the rural sector.

2. A moderate use of zinc and other metallic roofing material.

#### 1963-71

1. A rapidly declining use of cadjan and an increasing use of asbestos in the urban sector.

2. A sharp decline in the use of cadjans and an increase in use of tiles and asbestos in the rural sector.

The two decades taken as a whole showed definite signs of using more permanent material for roofs.

#### Flooring Material

Since statistical data relating to flooring material were not available in the Housing Census of 1953, the analysis that follows is based on the data available in the Censuses of 1963 and 1971.

In 1963, 59.3% of the housing stock had floors of mud or earth, 40.2% had cement or concrete floors. In the urban sector 73.2% of the housing stock had cement or concrete floors, and

#### Materials used for Construction

Material used	1953						Sri Lanka
	Sri Lanka	%	Urban	%	Rural	%	
1. Concrete, brick, stone, cement or cabook	531,683	34.9	116,728	63.7	414,955	30.9	839,920
(a) Percentage	100		21.95		78.05		100
2. Mud	863,513	56.7	47,052	25.6	816,461	60.9	992,690
(a) Percentage	100		5.04		94.6		100
3. Cadjan or Palmyrah	101,881	6.7	10,635	5.8	91,246	6.8	96,530
(a) Percentage	100		10.4		89.6		100
4. Other	26,618	1.8	8,921	4.9	17,697	1.3	42,600
(a) Percentage	100		33.5		66.5		100
Total	1,523,695	100	183,336	100	1,340,359	100	1,971,740

Source: Census of Housing, 1953, 1963, 1971.

#### Material used in Wall

#### Housing Stock 1963-1971

Material	1953 - 1963				
	Sri Lanka	%	Urban	%	Rural
1. Concrete, brick, cement, stone or cabook	308,237	68.8	78,362	58.1	229,875
2. Mud or earth	129,177	28.8	34,738	25.7	94,439
3. Cadjan or Palmyrah	5,351	-1.1	5,935	4.4	-684
4. Other	15,982	3.5	15,769	11.7	2,213
Total	448,045	100	134,804	100	313,241

Source: Derived from Census data, 1953, 1963 and 1971.

**TABLE VI**  
Materials used for Construction of walls - 1953-1971

Material used	1953						1963						1971					
	Sri Lanka	%	Urban	%	Rural	%	Sri Lanka	%	Urban	%	Rural	%	Sri Lanka	%	Urban	%	Rural	%
1. Concrete, brick, stone, cement or cabook	531,683	34.9	116,728	63.7	414,955	30.9	839,920	42.6	195,090	61.3	644,830	38.9	985,800	44.5	254,211	62.0	731,590	40.5
(a) Percentage	100		21.95		78.05		100		23.2		76.8		100		25.8		74.2	
2. Mud	863,513	56.7	47,052	25.6	816,461	60.9	992,690	50.3	81,790	25.7	910,900	55.1	1,017,946	45.9	84,877	20.7	933,068	51.6
(a) Percentage	100		5.04		94.6		100		8.23		91.72		100		8.34		91.6	
3. Cadjan or Palmyrah	101,881	6.7	10,635	5.8	91,246	6.8	96,530	4.9	16,570	5.2	79,960	4.8	114,487	5.0	21,769	5.3	89,718	4.9
(a) Percentage	100		10.4		89.6		100		17.1		82.9		100		19.51		80.59	
4. Other	26,618	1.8	8,921	4.9	17,697	1.3	42,600	2.1	24,690	7.7	17,910	1.17	102,243	4.6	49,201	12.0	53,042	2.9
(a) Percentage	100		33.5		66.5		100		57.9		42.1		100		48.1		51.9	
Total	1,523,695	100	183,336	100	1,340,359	100	1,971,740	100	318,140	100	1,653,600	100	2,217,478	100	410,050	100	1,807,418	100

Source: Census of Housing, 1953, 1963, 1971.

**TABLE VII**  
Material used in Wall Construction in Incremental Housing Stock 1953-63 and 1963-71

Material	1953 - 1963						1963 - 1971					
	Sri Lanka	%	Urban	%	Rural	%	Sri Lanka	%	Urban	%	Rural	%
1. Concrete, brick cement, stone or cabook	308,237	68.8	78,362	58.1	229,875	73.4	145,880	59.3	59,121	64.3	86,760	56.4
2. Mud or earth	129,177	28.8	34,738	25.7	94,439	30.1	25,256	10.3	3087	3.4	22,168	14.4
3. Cadjan or Palmyrah	5,351	-1.1	5,935	4.4	-11,286	-3.6	14,957	6.1	5199	5.6	9758	6.3
4. Other	15,982	3.5	15,769	11.7	213	.06	59,643	24.2	24,512	26.6	35,132	22.8
Total	448,045	100	134,804	100	313,241	100	245,738	100	91,920	100	153,818	100

Source: Derived from Census data, 1953, 1963 and 1971.





**TABLE VIII**  
Material used for Roof Construction - 1953-71

Material used	1953						1963						1971					
	Sri Lanka	%	Urban	%	Rural	%	Sri Lanka	%	Urban	%	Rural	%	Sri Lanka	%	Urban	%	Rural	%
1. Tile	590,376	38.7	123,781	67.5	466,595	34.8	685,070	34.7	177,500	55.8	507,570	30.7	764,853	34.5	195,480	47.7	569,373	31.5
(a) Percentage	100		20.9		79.1		100		25.9		74.1		100		25.5		74.5	
2. Asbestos	12,221	0.8	2,292	1.3	9,929	0.7	41,650	2.1	16,060	5.05	25,590	1.5	123,659	5.6	51,305	12.5	72,354	4.0
(a) Percentage	100		18.8		81.2		100		38.5		61.5		100		41.5		58.5	
3. Zinc or other metal	176,271	11.6	8,840	4.8	167,431	12.5	304,640	15.5	36,350	11.4	268,290	16.2	372,044	16.8	56,972	13.9	315,072	17.5
(a) Percentage	100		5.01		94.9		100		11.9		88.1		100		15.3		84.7	
4. Cadjan or Palmyrah	717,370	47.1	43,714	23.9	673,656	50.2	935,860	47.5	86,380	27.11	849,480	51.4	907,146	40.9	99,272	24.2	807,874	44.4
(a) Percentage	100		6.1		93.9		100		9.2		90.8		100		10.9		89.1	
5. Other	27,457	1.8	4709	2.7	22,748	1.7	4,520	.2	1,850	.6	2670	0.2	49,776	2.2	7,031	1.7	42,745	
(a) Percentage	100		17.1		82.9		100		40.9		59.1		100		14.1		75.9	2.4
Total	1,523,695	100	183,336	100	1,340,359	100	1,971,740	100	318,140	100	1,653,600	100	2,217,478	100	410,60	100	1,807,418	100

Source: Census of Housing 1953, 1963, 1971.

**TABLE IX**  
Material used in Roof Construction in Incremental Housing Stock, 1953-63 and 1963-71

Material used	1953-1963						1963-1971					
	Sri Lanka	%	Urban	%	Rural	%	Sri Lanka	%	Urban	%	Rural	%
1. Tile	94,694	21.1	53,719	39.8	40,975	13.1	79,783	32.5	17,980	19.6	61,803	40.2
2. A. C. Sheets	29,429	6.6	13,768	10.2	15,661	5.0	82,009	33.4	35,245	38.3	46,764	30.4
3. Zinc	128,369	28.6	27,510	20.4	100,859	32.2	67,404	27.4	20,622	22.4	46,782	30.4
4. Cadjan or Palmyrah	218,490	48.7	42,666	31.6	175,824	56.1	-28,714	-11.7	12,892	14.0	-41,606	-27.0
5. Other	-22,937	-5.1	-2,859	-2.1	-20,078	-.64	45,256	18.4	5181	5.6	40,075	26.1
Total	448,045	100	134,804	100	313,241	100	245,738	100	91,920	100	287,918	100

Source: Derived from Census data 1953, 1963, 1971.



T  
asbest  
6.6%  
inrea  
subsec  
declin  
11.7%  
a stro  
risen t  
a 195.  
sheets  
movin  
40.2%  
the ru

T  
during

1953-6

1.  
and ca

2.

1963-7

1.  
asbest

2.  
use of

T  
of usin

**Floorin**

Sir  
availab  
is base

In  
earth,  
73.2%

TABLE X  
Materials used for Flooring — 1963-71

Material used	1963			1971		
	Sri Lanka	Urban	Rural	Sri Lanka	Urban	Rural
1. Cement/ Concrete	791,910	232,860	559,050	978,314	322,199	656,114
Percentage	100	29.4	70.6	100	32.9	67.1
2. Mud/Earth	1,169,050	82,070	1,086,980	1,221,747	83,820	11,379,26
Percentage	100	7.0	93.0	100	6.8	93.2
3. Wood	8,920	2,390	6,530	7,609	2,548	5,062
Percentage	100	26.8	73.2	100	33.5	66.5
4. Others	1,860	820	1,040	9,808	1,494	8,315
Total	1,971,740	318,140	1,653,600	2,217,478	410,060	1,807,418
			100	100	100	100
			40.2	73.2	44.1	78.6
			59.3	25.8	55.1	20.4
			.5	.75	.3	.6
			.1	.25	.4	.4
			100	100	100	100
			100	100	100	100
			100	100	100	100

Source: Census of Housing 1963, 1971.

25.8% had mud or earth floors. In the rural sector only 33.8% of the houses had cement or concrete floors, and the majority, 65.7%, had mud or earth floors. By 1971 with the addition of 245,738 housing units, the proportion of houses with cement or concrete floors had increased to 44.1% and that of houses with mud floors had fallen to 55.1%. The urban share of cement or concrete floored houses increased from 29.4% to 32.9%. Cement floors accounted for 78.6% of the urban stock. Floors with earth or mud declined in the urban sector to 20.4%. Rural housing too showed similar trends - cemented or concrete floors moving up from 33.8% to 36.3% and mud floors declining from 65.7% to 62.9%.

The following table gives an analysis of the incremental housing stock during the period 1963-71 classified by type of material used for floors.

TABLE XI

Material used in the construction of floors - Incremental Housing Stock, 1963-71						
Material	Sri Lanka		Urban		Rural	
		%		%		%
1. Cement or Concrete	.. 186,404	75.9	89,339	97.2	97,064	63.1
2. Mud or Earth	.. 52,697	21.4	1,750	1.9	50,946	33.1
3. Wood	.. -1,311	-.5	158	0.2	-1,468	1.0
4. Other	.. 7,948	3.2	674	0.7	7,275	4.7
Total	.. 245,738	100	91,920	100	153,818	100

Source: Derived from Census data 1963, 1971.

Of the addition to the housing stock during 1963-71, 75.9% had cement or concrete floors, 21.4% mud or earth floors. Of the urban sector share of the incremental stock, 97.2% of the houses had cement or concrete floors and 1.9% mud or earth floors. In the rural sector there was a more even mix of 63.1% cement or concrete and 33.1% mud or earth floors.

It could be seen, therefore, that the trend in both urban and rural areas have been towards more cement or concrete flooring.

The foregoing analysis reveals the quality of housing added to the stock during the period 1953-71. It shows that both in the urban and rural sectors there was a marked trend towards the use of durable materials of house construction and a general improvement in the quality of housing.

## Tenure, Size, and Occupancy

### Floor Area

The trend towards better housing is underscored when we take a look at the floor area of the housing units added on to the stock. A reliable indicator is the comparison of average floor area of housing units. The census of 1953 did not provide data on floor area. The census of 1963 and 1971 provided data on the number of units with floor areas of different sizes. The classification of floor area was on the basis of less than 100 sq.ft., 100 to 250 sq.ft., 250 to 500 sq.ft., 500 to 1,000 sq.ft., 1,000 to 2,000 sq.ft. and over 2,000 sq.ft. The average floor area was calculated by using the median point in each of the six categories as the specific area relating to each category. The median point was multiplied by the number of units relating to each category of floor area to give the total floor area. On this basis the following table was derived:

TABLE XII

	1963		1971	
	Average floor area of housing unit	Average per capita floor area	Average floor area of housing unit	Average per capita floor area
Sri Lanka	.. 405	75.5	432.5	75.4
Urban	.. 480.8	72.3	501.8	74.4
Rural	.. 390.5	76.2	416.3	75.8

Source: Derived from Census data 1963, 1971.

These figures show that the average size of a housing unit has increased during the period 1963 and 1971. Per capita floor area has, however, decreased slightly and is due to the increasing occupancy rates in both rural and urban sectors.

### Number of Rooms in Houses

In 1953 nearly 70% of the national housing stock consisted of one and two-roomed houses. In 1963 the share of one and two roomed houses constituted 60% of the stock and in 1971 this declined to 43%. (Note: Comparison of the figures for 1963 and 1971 was made after adjustment of the data which was necessitated by a change in the basis of enumeration of rooms in the two censuses. In the 1963 census, kitchens were counted as rooms whereas in the 1971 census kitchens were not counted as

TABLE XIII

Housing Units in Sri Lanka, classified by number of rooms - 1953-71

No. of Rooms	1953						1963						1971					
	Sri Lanka	%	Urban	%	Rural	%	Sri Lanka	%	Urban	%	Rural	%	Sri Lanka	%	Urban	%	Rural	%
1 Room	557,500	34.59	58,478	31.01	499,022	35.06	304,600	15.45	45,720	14.37	258,880	15.66	745,707	33.6	132,997	31.6	612,710	34.1
2 Rooms	550,265	34.14	59,996	31.81	490,269	34.44	892,790	45.29	136,670	42.96	756,120	45.72	685,892	30.9	113,028	26.8	572,864	31.9
3 Rooms	294,628	18.23	32,355	17.61	262,273	18.42	414,520	21.02	64,290	20.21	350,230	21.18	363,767	16.4	64,328	15.3	299,439	16.7
4 Rooms	112,049	6.95	18,181	9.64	93,868	6.59	185,260	9.40	32,540	10.23	152,720	9.24	176,811	8.0	37,117	8.8	139,694	7.8
5 Rooms	48,796	3.03	8,269	4.38	40,527	2.85	87,960	4.46	16,580	5.21	71,380	4.32	77,671	3.5	18,791	4.5	58,880	3.3
6 Rooms & Over	48,569	3.07	11,307	6.00	37,262	2.64	86,610	4.38	22,340	6.42	64,270	3.88	62,982	2.8	18,432	4.4	44,550	2.5
Total	1,611,807	100	188,586	100	1,423,221	100	1,971,740	100	318,140	100	1,653,600	100	2,217,478	100	421,155	100	1,796,323	100
Unspecified	—	—	—	—	—	—	—	—	—	—	—	—	104,648	4.7	36,462	8.7	68,186	3.8

Source: Census of Housing 1953, 1963, 1971.



rooms. In view of the fact that the 1971 census enumerated 74.4% of urban houses, and 67.7% of rural houses as having separate kitchens, the data for 1971 was inflated by these percentages in order to derive a basis of comparability between the two censuses. The figures given in the table below have been derived in such manner.)

TABLE XIV  
Occupied housing units classified by number of rooms

	1971					
	Sri Lanka		Urban		Rural	
		%		%		%
One room	231,952	10.4	34,047	8.1	197,905	11.0
Two rooms	727,725	32.8	127,885	30.4	599,840	33.4
Three rooms	585,107	26.4	100,560	23.9	484,547	26.9
Four rooms	305,204	13.8	57,362	13.6	247,842	13.8
Five rooms	146,017	6.6	32,426	7.7	113,591	6.3
6 rooms & over	116,825	5.3	32,413	7.7	84,412	4.7
Unspecified	104,648	4.7	36,462	8.6	68,186	3.8
	2,217,478	100	421,155	100	1,796,323	100

Source: Derived from Census data 1971.

The share of three-roomed houses in the national housing stock which was 18.23% in 1953, rose to 21.02% in 1963 and 26.4% in 1971. The share of four-roomed houses which showed a slight decrease in 1963, had increased considerably in 1971. The five and six-roomed houses had also increased progressively in the three censuses.

In the urban sector, the share of one and two-roomed houses had decreased very considerably from 62.8% in 1953 to 38.5% in 1971. Three-roomed houses had an increased share of the stock, rising from 17% in 1953 to 23.9% in 1971. The share of four, five and six-roomed houses in the urban sector had also increased progressively at the three censuses. In the rural sector the trends have been similar to those shown in the urban sector, the share of the one-roomed housing declining from 69.4% in 1953 to 44.4% in 1971. The three-roomed houses had increased from 18.4% in 1953 to 26.9% in 1971. The share of four and five-roomed houses had also increased progressively at the three censuses.

TABLE XV  
Incremental stock 1953-1971 analysed by number of rooms

	1953-63					
	Sri Lanka		Urban		Rural	
		%		%		%
One room	-252,900	-70.3	-12,758	-9.8	240,142	-104.2
Two rooms	342,525	95.2	76,674	59.2	265,851	115.3
Three rooms	119,892	33.3	31,935	24.7	87,957	38.2
Four rooms	73,211	20.3	14,359	10.9	58,852	25.5
Five rooms	39,164	10.9	8,311	6.4	30,853	13.4
Six & over	38,041	10.6	11,033	8.5	27,008	11.7
	359,933	100	129,554	100	230,379	100

TABLE XVI

	1963-1971					
	Sri Lanka		Urban		Rural	
		%		%		%
One room	-72,648	-29.6	-11,673	-11.3	-60,975	-42.7
Two rooms	-165,065	-67.2	8,785	-8.5	-156,280	-109.5
Three rooms	170,587	69.4	36,270	35.2	134,317	94.1
Four rooms	119,944	48.8	24,822	24.1	95,122	66.6
Five rooms	58,057	23.6	15,846	15.4	42,211	29.6
Six and over	30,215	12.3	10,073	9.8	20,142	14.1
	245,738	100	103,015	100	142,723	100
Unspecified	104,648	42.6	36,462	35.4	68,186	47.8

Source: Derived from Census data 1953, 1963, 1971.

Analysis of the incremental stock accrued during the period 1953/63 shows a considerable increase in two-roomed houses and a significant decrease in single-roomed houses. The large housing units i.e. those with three rooms and over are represented in fair proportion. In the urban sector, the two and three-roomed units are the predominant categories whereas in the rural sector the two-roomed unit is the most predominant in the incremental stock. The decline in share of single-roomed housing units is greater in the rural than in the urban sector. The decline in single-roomed houses may be due to the addition of rooms to existing single-roomed houses.

Analysis of the incremental stock of 1963/71 shows a considerable drop in the output of one and two-roomed housing units. Housing units with three or more rooms form the bulk of the incremental stock. The larger housing units constitute almost the entirety of the urban incremental stock. In the rural sector, three-roomed units took the predominant share of the incremental stock.



The overall trends identifiable in the two intercensal periods are:

(1) The decline in the output of single-roomed houses in the period 1953/63.

(2) The drop in the output of one and two-roomed units in the period 1963/71.

(3) The increased output of units with three rooms and more during both periods under reference.

### Tenure

In 1953, 61.06% of the housing stock was owner-occupied, 14.5% rented or leased, 22.3% rent free, and 2.1% did not specify the type of tenure. For Sri Lanka as a whole, owner-occupied housing was the predominant form of tenure. In the urban sector, however, the most predominant form was the "rented or leased" category which amounted to 58.5% of houses. Owner-occupied housing was 31.2%. In the rural sector, owner-occupied housing was the major feature amounting to 65.02%. Rental housing was a low 8.7%. There was a sizeable proportion of rent free housing amounting to 24.12% indicative of the share of estate housing within the rural sector.

In 1963 there were no significant changes in the tenurial mix for the island as a whole. In the urban sector, however, there is a marked increase in owner-occupied housing and a similar decrease in rental housing. Rural housing, however, did not show much change and maintained almost the same proportions as in 1953.

1971 saw a slight increase in owner-occupied housing whereas the proportion of rental and rent-free housing had declined. In 1971 owner-occupied housing in the urban sector had risen and displaced rental housing as the predominant form of tenure. Rental housing in the urban sector which had declined from 58.5% in 1953 to 49.1% in 1963 fell further to 41.0% in 1971. Rent free housing in the urban sector which was 8.5% in 1953 and had risen to 10.2% in 1963 declined to 6.2% in 1971. This may indicate a change in intensity of the urban squatter problem. In 1971, the rural sector continued to show almost the same proportions with owner-occupied housing showing a slight increase, and a decline in rental and rent free housing.

TABLE XVII  
Tenure Status of Households in Sri Lanka - 1953-71

	1953			1963			1971		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
1. Owner occupied Percentage	984,129 61.06	58,723 31.14	925,406 65.02	1,226,860 62.22	128,130 40.27	1,098,730 66.22	1,403,411 63.3	200,822 47.7	1,202,589 66.9
2. Rented or leased Percentage	234,602 14.56	110,400 58.54	124,202 8.73	300,870 15.26	156,270 49.13	144,600 8.74	273,934 12.4	172,855 41.0	101,079 5.6
3. Free of rent but not owned Percentage	359,322 22.29	16,022 8.50	343,300 24.12	422,460 21.43	32,460 10.2	390,000 23.58	334,463 15.1	26,322 6.2	308,141 17.2
4. Unspecified Percentage	33,754 2.09	3,441 1.82	30,313 2.13	21,550 1.09	1,280 0.4	20,270 1.23	65,669 3.0	9,676 2.3	55,992 3.1
5. Other Percentage	—	—	—	—	—	—	140,007 6.3	11,480 2.7	128,521 7.2
Total	1,611,807	188,586	1,423,221	1,971,740	318,140	1,653,600	2,217,478	421,155	1,796,322

Source: Census of Housing 1953, 1963, 1971.

In sum, this period witnessed an all-round increase in owner-occupancy which was more marked in the urban sector. There was also a decline in rental housing which was more prominent in the urban areas. These trends are a positive indication of a more equitable distribution of the housing stock and seems to have been secured largely by stringent rent control regulations. The movement towards re-distribution of income and wealth in the form of housing as shown in this analysis is validated by a study of the patterns of income distribution during the period. Patterns of income distribution that have emerged from an analysis of the three consumer finance surveys conducted by the Central Bank of Sri Lanka in 1953, 1963 and 1973<sup>1</sup> show a marked shift in the distribution of income towards greater equality.

The trends in housing development that emerged during the period 1953-71 indicates a rapid improvement in the quality of housing added on to the stock during this period. Both urban as well as rural sectors have shown a marked tendency for the use of durable materials of construction of walls, roofs, and floors thereby enhancing the quality of the housing stock. There was a proportion of temporary housing added on during this period signifying the output of substandard housing but this was small in comparison to the large output of good quality housing which showed up more prominently. In addition to the quality of construction, we have evidence of improvement in the size of housing units both in the urban as well as rural areas. Per capita floor area has declined slightly, no doubt due to the increasing rates of occupancy. The fact that housing units which were added on during this period tended to be larger in terms of the number of rooms, seems to indicate that the improvement in quality was substantial. Further, the significant changes in tenurial status which shows a trend towards owner occupancy points to a more equitable distribution of the housing stock.

The decade 1953-63 which witnessed a larger output of housing than the subsequent period, was one in which imports to the country although regulated were almost freely permitted. The post 1961 period saw a gradual tightening up of import controls and regulations accompanied by the emergence of several local industries. Some of these were of direct significance to the housing industry

1. See Annual Report, Central Bank of Sri Lanka, 1973.

such as the steel mill, the additional cement factory, and the factories turning out asbestos sheets. While these would have in some degree affected the quality of housing output, the comprehensive welfare schemes in operation would also have contributed towards improving the quality of housing. Subsidised food, free medical and health facilities and free education all combine to produce the effects of general income subsidies and have led to investment in good quality housing rather than increased consumption. Since individual standards of living are determined to a great extent by the level of housing and since low quality housing creates social costs which in turn would reduce the productive effort, it would seem that the pattern of housing development in Sri Lanka during this period contributed to a betterment in the standards of living and thereby contributed to the creation of the social base for a more intensive development effort.

## GREEN REVOLUTION WITH OR WITHOUT TRACTORS: THE CASE OF SRI LANKA

IFTIKHAR AHMED

### Use of Tractors in Sri Lanka

#### Concentration of Tractor-Use in the Dry Zone

In most of the Dry Zone districts,<sup>1</sup> land preparation is done by tractors. During the 1966-67 Maha season,<sup>2</sup> 100% of the paddy cultivators in Polonnaruwa and Vavuniya districts have used tractors for ploughing. In Amparai district the proportion of farmers using tractors was nearly 92% and in the Hambantota district over three-quarters of all farmers were tractor-users.

TABLE 1  
Paddy Cultivators using Tractors for Ploughing land:  
Sri Lanka 1966-67 Maha<sup>a</sup>

(in percentages)

District	Only Tractors	Both tractors and Buffaloes <sup>b</sup>	Total use of Tractors	Average size of Paddy Holding (acres)
Hambantota	73.3	3.1	76.4	1.98
Polonnaruwa	74.0	25.9	99.9	3.55
Amparai	84.4	7.3	91.7	c
Vavuniya	68.7	31.3	100.0	c
Trincomalee	53.2	6.3	59.5	c
Batticaloa	59.8	1.9	61.7	c

- a. Source: The Central Bank of Sri Lanka, *Report on the Survey on Cost of Production of Paddy*, 1969, p. 20 and pp. 24-34.  
 b. First ploughing was done by tractors and the second (and third) ploughing by buffaloes or by mammoths.  
 c. Not available.

1. The drier part of the Island receiving on an average less than 75 inches of rain per year mainly during October-January.  
 2. Extends from September-October to February-March and coincides with the North-East Monsoon which brings rain to the dry zone.

### Pre and Post-HYV Periods

Table 2 compares tractor-use prior to the introduction of the new HYV (high yielding varieties) with that following the introduction of new HYV for Hambantota district.

TABLE 2  
Use of Tractors for land preparation during Pre and Post-HYV periods:  
Hambantota District<sup>a</sup>  
(percentage of total cultivators)

	Pre-HYV <sup>b</sup> Maha 1966-67	Post HYV <sup>c</sup> Maha 1971-72
Proportion of farmers	76.4%	75.1%
Average size of paddy holding (acres)	1.98	4.51

- a. Source: Pre-HYV from Table 1 and Post-HYV from K. Izumi and Ranatunga, *Environmental and Social Constraints on Paddy production under existing conditions - A Case Study of Hambantota District*, Study Seminar paper, p. 30 (153 Hambantota farmers were randomly selected).  
 b. Pre-HYV here implies prior to the introduction of the new HYV. IR-8 was introduced in 1967. BG 11-11, BG 34-8 and LD-66 were released during 1970-71. They are the dwarf non-lodging varieties.  
 c. 43.4% of the farmers have adopted New HYV and 48.8% Old HYV which adds up to 92.2% for the two combined.

It is apparent that tractor-use has not increased following the adoption of HYV (on the contrary a slightly lower proportion of farmers use tractors now).

TABLE 3  
Use of Tractors in Minipe: Sri Lanka 1967-68  
(Average of all Farms)<sup>a</sup>

		Proportion of farmers reporting <sup>b</sup>
Tractor Cost as proportion of Cash Cost of Total Hired Draught Power	80%	
Proportion of total tractor cost spent on tillage	68.5%	58%
Proportion of total tractor spent on threshing	31.4%	79%
Farm size in acres	7.2	
Low land (used for paddy)	3.9	
High land (unfit for paddy)	3.3	

- a. Source: University of Ceylon, *Characteristics of Individual Project Area*, Minipe Agricultural Economics Research Unit, Faculty of Agriculture, Peradeniya, June 1969.  
 b. Survey covered 212 farms.

It is also apparent from Table 3 that 80% of the cash cost of hired draught power is spent on tractor hiring. The tractors are more widely used for tillage operations than for threshing operations although a large proportion of farmers reported its use for threshing purposes.

### Impact of Tractor-Use on Employment

#### Dry Zone vs Wet Zone

In Table 4 a comparison is made using cross-section data between the districts in the Wet and Dry Zones. The Dry Zone, as we note from Tables 1 and 3, uses the tractor quite extensively for the ploughing operation. It is therefore not surprising that the number of man-days required to cultivate an acre of paddy is lower for the dry zone districts as compared to the wet zone districts. The lower input of labour per bushel of paddy in the dry zone districts may also reflect a greater efficiency in the production process.

TABLE 4

Labour Requirements in the Dry Zone and Wet Zone Districts of Sri Lanka: Maha 1966-67<sup>a</sup> and Yala 1972<sup>b</sup>

Region	District	Labour Requirements			
		Man-days per acre		Man-days per bushel	
Dry Zone		1966-67	1972	1966-67	1972
Bulk of farmers use tractors for ploughing	Hambantota	35.0	40.6	0.79	1.1
	Polonnaruwa	36.7	68.0	0.78	0.9
Wet Zone	Kurunegala	53.3	64.4	1.73	1.3
	Kandy	97.9	93.1	2.66	1.3
	Colombo	53.1	55.3	3.19	1.2

a. Source: The Central Bank of Sri Lanka, *Report on Cost of Paddy Production*, 1969 pp. 24-34.

b. Source: Izumi, K. and A. S. Ranatunga, *Cost of Production Study: Yala Paddy 1972*, Agrarian Research & Training Institute. Research Study Series No. 1, Colombo, Sri Lanka, March 1972.

#### Tractor-Use vs Buffalo-Use

By far the clearest evidence of the impact of tractorisation on employment is brought out in Table 5. For every additional acre on which the tractor replaces the plough, the labour requirement is reduced by nearly eight man-days. As the vast majority

TABLE 5

Comparison of Labour Requirements for HYV Farmers<sup>a</sup> Using Tractors with those using Buffaloes: Minipe, Sri Lanka, Maha 1969-70<sup>b</sup>

Operation	(Man-days per acre) <sup>c</sup>			Index Buffaloes = 100
	Farmers Using (1) Buffaloes	(2) Tractors	(2) - (1) Difference	
Ploughing 1st & 2nd	10.53	4.93	- 5.60	47
Bunding & Plastering	3.40	5.87	+ 2.47	173
Puddling & Levelling	6.20	3.27	- 2.93	53
Cleaning drains	1.00	0.86	- 0.14	85
Nursery prep. & uprooting	4.90	5.24	+ 0.34	108
Transplanting	6.50	6.74	+ 0.24	104
Fertilizer Application	1.50	1.45	- 0.05	97
Hand Weeding 1st and 2nd	6.50	4.92	- 1.58	76
Rotary Weeding 1st and 2nd	—	0.51	+ 0.51	—
Pesticide Application	0.30	0.53	+ 0.23	167
Reaping/Collecting/Stacking	13.50	14.09	+ 0.59	104
Threshing	7.60	5.72	- 1.88	75
Total	61.93	54.13	- 7.80	87

a. 40 farmers were covered in this survey of which 25 use tractors (average farm size 5.5 acres) and 15 use buffaloes (average farm size 3 acres).

b. All 40 farmers grew HYV on approximately 82% of their total area and the varieties grown were IR-8, H-4 and H-8.

c. Source: Yudelman, Montague, Gavan Butler and Ranadev Banerji, *Technological Change in Agriculture and Employment in Developing Countries*, O.E.C.D. Paris Development Centre Studies, Employment Series: No. 4, 1971, pp. 79, 81, Table V.

of the farmers in the dry zone districts use tractors for ploughing, it is important to note that this operation alone displaces almost 6 man-days of labour for every acre on which the tractor replaces the buffalo. When a tractor instead of a buffalo is used for threshing, nearly 2 man-days of employment are foregone for every acre of land.

#### Major Causes of Tractorisation

The use of tractors is concentrated primarily in the Dry Zone area. What we find is an area where farm size is no more than 3 or 4 acres, and yet the vast majority of the farmers use tractors

for ploughing and threshing. This phenomenon is mainly attributable to the *agro-climatic conditions* of this region.<sup>3</sup>

Generally, the Maha<sup>4</sup> monsoon rains are preceded by a rather long dry spell from May to August which makes the soil very dry and hard. With the type of ploughs the farmers possess, it is difficult to use buffaloes for ploughing under dry conditions. Thus, in most instances, farmers are not in a position to commence cultivation operations until the actual monsoon rains begin. Even in many of the irrigated areas, water is not made available from the tanks until the monsoon rains have commenced as the tanks themselves are dependent for their supplies of water on rainfall.

Lack of an assured supply of water even at the beginning of the Maha season, compels the farmers to do hurried field preparation. In Sri Lanka only 31% of the paddy area has an assured supply of water from the major irrigation schemes. Even in these schemes the time available for farmers from the first issue of water to sowing is about 40 to 45 days.

Poor quality of draught animals available is another factor that has compelled farmers to depend more on tractors. In a situation where farmers are faced with uncertainty most of the time, mainly due to lack of an assured supply of water, delayed ploughing, hurried field preparation and late sowing have become common features in the pattern of cultivation that is generally adopted. Late sowing results not only in poor crops but may also expose the crops to damage by rains at harvesting time.

On the other hand, tractor ploughing of paddy land is possible immediately after harvesting of the Yala (dry) season<sup>5</sup> paddy crop. It is not necessary for farmers to wait till the arrival of the monsoon rains to commence tractor ploughing as tractors are equipped with suitable implements for work under dry conditions. Thus the use

3. This section draws heavily from Izumi, K and A. S. Ranatunga, *Utilization of Labour under HYV of Paddy in Sri Lanka*, Seminar Paper presented in the I.D.S. Sussex University Seminar on "Economic & Social Consequences of the Improved Seeds", held at Kandy, April 19 to May 20 1973, pp. 8-9.
4. As indicated earlier, this season normally extends from about September-October to February-March and coincides with the North-East Monsoon which brings rain to the dry zone.
5. This season normally extends from April to August and coincides with the South-West monsoon during which time the dry zone gets little or no rain.

of tractors results in timely cultivation which generally results in good crops and the speed of cultivation not only enables the farmers to complete their sowing in time but also relieves them of the drudgery of working long hours with buffaloes.

The old high yielding varieties (H<sub>+</sub> in particular) were highly resistant to shedding of grain, making it difficult for the farmers to use buffaloes for threshing. This compelled the farmers to use tractors for threshing purposes. Given the fact that nearly 80% of the acreage in the Dry Zone area was under H<sub>+</sub>, the tractors were used on a larger scale displacing the buffaloes.

#### *Government Tractor-Import Policies (Pre and Post-HYV Periods)*

Towards the end of the 50's the old high yielding varieties (tall indicas, H-series) came to be introduced. During the 60's the OHYV's had spread to nearly three-quarters of the rice area (H-4, H-7 and H-8 together covered 72.7% of Maha 1968-69 acreage)<sup>6</sup>. A comparison of 4-wheel tractor imports during the two decades shows that the number imported during the 60's was not very much higher than that during the 50's (Table 6). At the beginning of the

TABLE 6

#### Four-Wheel Tractor Imports Sri Lanka: 1950-1976

Period:	1950-60 <sup>a</sup>	1960-65 <sup>b</sup>	1966-70 <sup>b</sup>	1960-70 <sup>b</sup>	1950-69 <sup>c</sup>	1972-76 <sup>d</sup>
	(Little OHYV)	(Post-Old HYV)			(Pre-NHYV)	(Post NHYV)
Number	7,748	2,200	6,000	8,200	15,948	5,000

- a. Obtained by subtracting 1960-70 tractor imports from 1950-69 tractor-import figure.
  - b. Stoutjesdijk, E and P. Richards, *Agriculture in Ceylon Until 1975*. O. E. C. D. Paris, p. 146.
  - c. Tractor Committee Report as quoted in Gunatilleke, Godfrey *Import Export Policies and High Yielding Varieties - Synopsis Seminar Paper*; Table IX.
  - d. Five Year Plan Technical papers as quoted in Gunatillake, *op.cit.* Table VIII.
- a. Tractor Committee Report, *op.cit.*
  - b. Five Year Plan Technical Papers, *op. cit.*
6. The only NHYV introduced during the 60's was IR-8 in 1967. The OHYV includes the H-varieties and were developed in Sri Lanka during the 50's having good fertilizer response and was therefore capable of higher yield compared to prevailing varieties. But these were tall indica varieties of hybrid origin and were susceptible to lodge.

The NHYV were the dwarf indica strains and therefore were not susceptible to lodging and yielded 40 to 50 per cent more compared to OHYV.

70's the New High Yielding Varieties (dwarf varieties BG 11-11, BG 34-8 and LD-66) were introduced. The table above sets out the tractor imports during the period 1950-1969 and the projected imports for the Plan period 1972-1976.

Similarly over seven and a half thousand 2-wheel tractors were imported during the last two decades but nearly as many are to be imported during the first half of the present decade.

Thus we can conclude that a policy of tractorisation was followed by the government quite independently of the introduction and adoption of HYV. During the two decades preceding the introduction of NHYV nearly 16,000 four-wheel tractors had already been imported and less than 8,000 two-wheel tractors were imported during the preceding decade. However, the period of the emergence of NHYV coincides with the heavy tractor imports projected during the plan period.

#### Socio-Economic Consequences of Tractorisation

The increasing emphasis on tractors led the farmer to release almost his entire buffalo holding for consumption. The Government, however, failed to maintain its fair price tractor pools and the possession and control of the use of tractors passed increasingly into the hands of affluent farmers, merchants and middlemen. We have already noted that three-quarters of the farmers in Hambantota district use tractors for land preparation (Maha 1966-67 and Yala 1972). However, very few cultivators own tractors as is observed from Table 7. This suggests that tractor owners are non-cultivators. Among 32 owner cultivators, only four have tractors but the total number of tractors belonging to them is six.

Those four who have the tractors on their farms obviously hire them out to other farms since the size of their holdings is a meagre 2.90 acres. Similarly out of 77 tenant farmers 2.5 have tractors on their farms but the total number of tractors belonging to this class is 3.5. With farm sizes of 2.85 and 4.98 acres the other two categories of tenants also have three tractors on their farms. It is interesting to note the concentration of buffalo-ownership. Out of the 111 tenant-farms (all categories combined) only 9 farms have buffaloes. The total number of buffaloes belonging to the tenants is 95.

TABLE 7  
Ownership of Tractors and Buffaloes:  
Hambantota District, Sri Lanka 1972<sup>a</sup>

Tenurial Status of Cultivators	No. of farms	No. of farms which have			Total No. which belong to each group			Average size of paddy holding
		Tractors		Buffaloes	Tractors		Buffaloes	
		Two-wheel	Four-wheel		Two-wheel	Four-wheel		
Full-Tenant <sup>b</sup>	77	2.5	—	6	3.5	—	38	4.77
Tenant-Owner <sup>c</sup>	18	2	—	1	2	—	24	2.85
Owner-Tenant <sup>d</sup>	16	1	—	2	1	—	33	4.98
Owner <sup>e</sup>	32	3	1	2	5	1	23	2.90
Total	143	8.5	1	10	11.5	1	118	3.88

- Source: Izumi, K. and A. S. Ranatunga, *Environmental and Social Constraints on Paddy Production Under Existing Conditions - A Case Study of Hambantota district*, Seminar paper, pp. 12-14, 30.
- Entire land is tenant-land and none is rented or leased out.
- More than 50% land is tenant-land and none is rented or leased out.
- More than 50% land is owned by the cultivator and none is rented or leased out.
- Entire land owned by cultivator and none is rented or leased out.

This pattern of distribution of ownership of both tractors and buffaloes indicates that the vast majority of the cultivators obtain tractors and buffaloes on hire. As mentioned earlier, out of 143 farmers over 75% of the farms use tractors for ploughing and only 10 of these 143 farmers have tractors on their farms.

When the tractor is hired from affluent farmers, merchants and middlemen, the peasant farmer has to accept the operator and other men engaged by the tractor-owner together with the machine. Men and machines are offered as a package and imposed on the peasant farmer. It can be seen from Table 9 that it is due to this reason that the percentage of hired labour used for land preparation and threshing has become substantial and is increasing over time. As a direct consequence of the use of such high proportion of hired labour, the cost of cultivation has increased and family labour earnings of the peasant farmers have been reduced.

During the last few years, there has been an acute shortage of tractors and spare parts due to import restrictions placed on account of foreign exchange difficulties being faced by Sri Lanka. One immediate consequence was that owners of tractors raised

TABLE 8

Use of Hired Labour and Farm Size with Tractorisation: Dry Zone Districts:  
Sri Lanka Maha 1966-67 and Maha 1971-72/Yala 1972

District	Hired Labour as % of Total Labour Use		Tractor-Users as % of Total No. of Cultivators		Average Size of Paddy Holdings	
	Maha 66-67 <sup>a</sup>	Yala 72 <sup>b</sup>	Maha 66-67 <sup>a</sup>	Yala 71-72 <sup>c</sup>	Maha 66-67 <sup>a</sup>	Yala 72 <sup>b</sup>
Hambantota	72	75.6	76.4	75.1	1.98	2.88
Polonnaruwa	73	85.1	99.9	— <sup>d</sup>	3.55	4.09

- Central Bank of Ceylon, *op.cit.* pp. 20, 24-34.
- Izumi, K. and A. S. Ranatunga *Cost of Production Study, Yala Paddy 1972 ARTI*, Colombo Research Study Series No. 1, March 1972.
- Izumi, K. and A. S. Ranatunga, *Environmental and Social Constraints on Paddy Production under existing conditions, op.cit.* p. 30, Table 4-3.
- Not available.

their charges by 100 per cent.<sup>7</sup> The subsistence farmer cannot now return to the use of buffaloes and has become dependent on tractor use for some years. This also resulted in delays in completing cultivation operation. In such situations, farmers have been compelled to go in search of buffaloes for ploughing invariably late in the season.<sup>8</sup> The most scathing evaluation of the adverse socio-economic impact of tractorisation has been presented by Jayaweera, "..... In the tractor owner, who is invariably an affluent farmer, the subsistence farmer has acquired a new oppressor, more intractable than the feudal-land-owner. A new feudalism of technology has grown up around the tractor owners. The Paddy Lands Act notwithstanding, smallholder subsistence farmers are slowly losing operational control of their paddy lots to the tractor owners."<sup>9</sup> Table 8 also gives some indication of increases in the size of operational holdings. The newly added landless, now available as hired labour, may have been hired on what was their own land.

- Jayaweera, Neville, *Credit Support for HYV in Sri Lanka* in *Marga Quarterly Journal*, Vol. 2 No. 2, 1973, pp. 18-48.
- Izumi, K. and A. S. Ranatunga, *Utilization of Labour under HYV Paddy in Sri Lanka, op.cit.* p. 9.
- Jayaweera, *op.cit.*, p. 43.

## Conclusions

(1) Tractor-use is concentrated primarily in the Dry Zone area of Sri Lanka and about three-quarters or more of the Dry Zone farmers use them for land preparation and threshing. This is surprising especially in a context in which the average paddy holding is no more than 3 or 4 acres.

(2) Tractor-use was prevalent prior to the adoption and spread of the HYV and appears to have been independent of HYV adoption. It can definitely be said that prior to the introduction of the NHYV (the dwarf varieties) massive tractorisation had already taken place.

(3) The vast majority of the farmers use tractors for land preparation and threshing because of soil and climatic conditions in the Dry Zone and poor quality of draught animals.

(4) Impact on employment has been adverse. For every acre on which the buffalo is replaced by a tractor, nearly 8 man-days of employment are foregone. Almost all this unemployment results from the use of the tractor instead of the buffalo for the ploughing and threshing operations (and this is significant because tractors are used primarily for threshing and ploughing.)

(5) The distribution of ownership of tractors indicate that very few farms have tractors on them. They are owned by a few affluent farmers, merchants and middlemen (non-cultivators).

(6) Personnel engaged by the tractor-owners are offered as a package together with the tractor and is imposed on the peasant farmer. As a result the proportion of hired labour is high (well over three-quarters of total labour used) and is increasing over time. This means the cost of cultivation is higher and that family labour earnings are lower.

(7) Shortage of tractors and spare parts have been caused by import restrictions imposed on account of foreign exchange difficulties. The consequences have been steep increases in charges for tractor use and delays in obtaining tractor services resulting in delayed land preparation.

(8) The door appears to be closed to a return to buffalo-use as an alternative. The large majority of peasant farmers who do

not own tractors are dependent on a few tractor owners who are in a position to dictate their terms and are often more exploitative than the feudal land owner.

There is evidence, however, that in the shortage of tractors and the prohibitive hire costs of tractors, there is an increasing demand for buffaloes particularly for ploughing. If this is true, then the old argument that agro-climatic conditions were unfavourable for buffalo ploughing does not appear to be conclusive. It might be possible to find the appropriate technological answers that would make buffalo ploughing efficient.

*Acknowledgement is due to Michael Lipton of the Institute of Development Studies, Sussex for his valuable comments on the first draft of the article.*

## DRAFT FOR A CODE OF CONDUCT FOR THE TRANSFER OF TECHNOLOGY

---

*Recent studies have revealed the high costs incurred by developing societies in importing technology from the developed world for transforming their economies and modernising their societies. Costs of the transfer of technology range from easily identifiable components such as royalties, technical service fees, payments to foreign consultants and experts, to elements which are less easily identifiable such as inflated prices for capital goods supplied, tied sources of raw materials, restrictions in regard to exports and a host of other conditions which perpetuate the technological and economic dependence of developing countries. As a part of a programme of studies sponsored by the UNCTAD, the Marga Institute has prepared a study on the cost of transfer of technology in Sri Lanka. UNCTAD is currently engaged in a systematic effort in improving the international framework for the transfer of technology to developing countries. One major item on its programme is the formulation and implementation of an internationally accepted code for transfer of technology. Marga reproduces below the text of a draft code prepared by an independent group of experts convened by Pugwash in July this year.*

### Preamble

The decision to direct the attention of this Working Group of the Pugwash Conferences on Science and World Affairs to a consideration of a Code of Conduct on Transfer of Technology reflects a growing demand of the international community for regulation in this field. We have taken note particularly of:

- (i) paragraph 9 of resolution 39 (III) of UNCTAD, adopted in April 1972 asking for a study of possible bases for new international legislation regulating the transfer of patented and unpatented technology from developed to developing countries;



- (ii) the agreement of the Heads of State of Governments of the Non-Aligned Countries in September 1973 to continue the efforts within international organizations to obtain easier and less costly access to modern technology and for the adoption of such an international code, taking due account of the independence of the developing countries;
- (iii) the October 1973 resolution of the Interparliamentary Council calling upon the Parliaments and Governments of all countries of the world, *inter alia*, to draw up new international legislation for the transfer of technology, including a code of conduct governing this transfer;
- (iv) the statement by the United Nations Advisory Committee on the Application of Science and Technology (ACAST) in November 1973 giving emphasis to the great importance of moving rapidly towards the formulation of a code;
- (v) the request by UNCTAD's Trade and Development Board in September 1973 that the Inter-governmental Group on Transfer of Technology at its third session study the possibility and feasibility of an international code of conduct in this field;
- (vi) the recommendation of the 23rd Pugwash Conference on Science and World Affairs to establish a Working Group to "formulate a preliminary draft Code of Conduct" on transfer of technology;
- (vii) paragraphs 15 and 20 of the United Nations General Assembly resolution 3041 (XXVII) which noted with appreciation that intergovernmental action was being mobilized by UNCTAD in a number of fields, including restrictive business practices and transfer of technology, and recommended that the Trade and Development Board of UNCTAD should select the areas in which action can be initiated for the negotiation and adoption of multilateral legal instruments within its field of competence.

### Objectives and Principles

1. While technology transfer mechanisms, including those involving international technology trade transactions, may differ

according to political and economic systems and levels of development, the access to modern technology represents one of the basic conditions for socio-economic development of all countries and the maintenance of world peace and increase in overall prosperity. It is considered of vital importance to establish and implement international rules that would enable every country to participate on equal footing in the international technology transfer. Therefore, the present Code of Conduct on Transfer of Technology has the following objectives and principles:

- (i) to establish general equitable rules of behaviour in the international technology markets taking into consideration particularly the justified needs of developing countries and legitimate rights and obligations of technology producers and suppliers and technology recipients;
- (ii) to make clear the distinction between proprietary technology and freely available technology and reflect this distinction in terms and conditions of technological transactions;
- (iii) to foster the expansion of international trade in proprietary technology on terms mutually beneficial to suppliers and recipients by eliminating restrictive technology trade practices and regulating monopolistic rights accruing to some proprietary technology owners for the purpose of assuring the strengthening of the negotiating power of developing countries;
- (iv) to ensure fair pricing of technology trade transactions, by assessing all direct and indirect costs to the recipients and profits to the suppliers, and taking into consideration, *inter alia*, the duration of a contract and the dynamics of technological progress;
- (v) to introduce as a minimum the most-favoured-licensee clause in the international technology trade transactions involving developing countries;
- (vi) to expand free flow of non-proprietary technology on a non-discriminatory basis and through appropriate channels and mechanisms to suit the requirements of developing countries;

- (vii) to ensure the responsibility of suppliers and recipients to adapt technological trade transactions and flows of freely available technology to factor proportions of the countries with different development levels and to their local development needs and absorptive capacity;
- (viii) to increase the contribution of technology, under specially favourable conditions, for the solution of pressing social problems in developed and developing countries; and
- (ix) to ensure that technological transactions entail the strengthening of local technological capability of developing countries, which would permit their endogenous technological advancement for the purpose of diminishing gradually their technological dependence upon the outside world and assuring their increasing participation in the world technology production and trade.

#### Scope of Application

2. For the purpose of this Code of Conduct the term "technology transfer" covers any kind of transfer of proprietary or freely available technology, independently from its legal form. It includes, *inter alia*, the following:

- (i) licensing agreements covering patents, inventors' certificates, utility models and industrial designs as well as trademarks, service names, and trade-names transferred together with proprietary or freely available technology;
- (ii) licensing agreements covering the provision of know-how and technical expertise in the form of plans, diagrams, models, instructions, guides, formulations, specifications, and involving personnel training;
- (iii) agreements covering provision of basic or detailed engineering designs for the installation and operation of plant and equipment and for the production of goods and services;
- (iv) purchases of machinery, equipment, intermediate goods and raw materials, insofar as they are part of transactions involving technology transfer;
- (v) industrial and technical co-operation agreements of any kind including international sub-contracting as well as provision of management and marketing services; and

- (vi) technology transactions associated with the establishment and operation of wholly owned subsidiaries or affiliates and of joint ventures with various degrees of participation.

3. The provisions of the Code of Conduct apply to all transactions covering transfer of technology regardless of the parties involved whether private capital, state or regional, or international institutions. These provisions should be considered as minimum standards for achieving adequate conditions of technology transfer with regard to the development possibilities of developing countries.

#### Relations between Suppliers and Recipients of Technology

4. The following clauses and/or practices, *inter alia*, in transfer of technology arrangements are likely to have significantly adverse effects as restrictive business practices, whether in developed or developing countries, and shall not be utilized:

- (i) clauses and/or practices prohibiting or limiting in any way the export of products manufactured on the basis of the technology in question including restrictions on exports to certain markets, permission to export only to certain markets, and requirement of prior approval of the licensor for exports;<sup>1</sup>
- (ii) clauses and/or practices restricting the sources of supply of raw materials, spare parts, intermediate products and capital goods;<sup>2</sup>
- (iii) clauses and/or practices using quality controls or product standards by the supplier as a means of introducing unwarranted requirements on the technology recipients;
- (iv) clauses and/or practices requiring the acceptance of additional technology not desired by the recipient, as a condition for obtaining the technology in question, and requiring the remuneration for such additional technology, e.g. package licensing;
- (v) clauses and/or practices requiring higher technology payments on goods produced for exports vis-a-vis goods for the domestic market;

<sup>1</sup> It was considered that in certain appropriate circumstances this might be justified.

<sup>2</sup> This paragraph is to be read in conjunction with para. (vii) in Chapter V.

- (vi) restrictions in obtaining competing or complementary technology through patents and know-how from other licensors with regard to the sale or manufacture of competing products;
- (vii) clauses and/or practices restricting the recipient's volume, scope and range of production or field of activity;
- (viii) clauses and/or practices whereby the supplier of technology reserves the right to fix the selling or resale price of the products manufactured;
- (ix) clauses and/or practices requiring the recipient of technology to enter into exclusive sales or representation agreements with the supplier of technology;<sup>1</sup>
- (x) limitations on the research and development (R&D) policy and activities of the recipient company;
- (xi) grant-back provisions establishing a unilateral flow of technical information and improvements from the technology recipient without reciprocal obligations from the technology supplier. All new technologies, patents and improvements developed by the technology recipient as a result of the agreement shall be the property of the technology recipient;
- (xii) clauses and/or practices obliging the recipient to convert technology payments into capital stock;
- (xiii) requirements by the supplier in licensing arrangements, except management contracts, to participate in the management decisions of the recipient enterprise;
- (xiv) requirements to use the staff designated by the technology supplier;
- (xv) requirements that the recipient pay royalties during the entire duration of manufacture of a product or the application of the process involved and, therefore, without any specification of time;
- (xvi) clauses and/or practices prohibiting or restricting the use of the technology after the termination or expiry of the contract in question;

<sup>1</sup> It was considered that in certain appropriate circumstances this might be justified.

- (xvii) continuation of payments for unused or unexploited technology;
- (xviii) licensee's undertaking not to contest the validity of the supplier's patents;
- (xix) restricting the use of the subject matter of a patent and any unpatented know-how license which relates to the working of the patent once the patent has expired;
- (xx) the charging of royalties on patents after their expiry.

5. The following clauses and/or practices, *inter alia*, in transfer of technology arrangements involving the use of trade marks are likely to have significantly adverse effects, whether in developed or developing countries, and shall not be utilized:

- (i) requirements prohibiting or restricting exports by the licensee of goods covered by a trade mark licensing arrangement;
- (ii) the tying of the supply of imports of a product bearing a particular trademark to the trademark owner and thereby prohibiting imports from a third party or a licensee;
- (iii) the use of protection afforded under the trademark system to restrict a licensee's activities;<sup>1</sup>
- (iv) obligations to use a particular trademark with patented process or the know-how supplied;<sup>2</sup>
- (v) restrictions in obtaining competing or complementary technology from other licensors with regard to the sale or manufacture of products involving trademarks.

#### Relations among Suppliers of Technology

6. All horizontal cartel activities among technology suppliers involving restrictions on territory, quantity, price and customers

<sup>1</sup> For example, to act as a distributor rather than a manufacturer of the trademarked product. It was recognized that such a restriction might be justified where "house marks" or "family marks" were involved.

<sup>2</sup> It was considered that in certain appropriate circumstances this might be justified.

affecting the transfer of technology shall not be utilized against developing countries, particularly the following practices:

- (i) import cartels;
- (ii) rebate cartels and other price fixing arrangements;
- (iii) national export cartels;
- (iv) international cartels, which allocate markets or control exports or imports.

7. Any adverse effects of the following cartel activities on the transfer of technology should be avoided:

- (i) private and semi-official agreements on certain standards in developed countries;
- (ii) specialization cartels if they do not lead to a dominant position;
- (iii) cartels for the exchange of technical information;
- (iv) rationalization cartels if they do not lead to a dominant position;
- (v) small-scale industry and small-scale marketing cartels.

#### Guarantees

8. The supplier shall guarantee that:

- (i) the technology acquired is in itself suitable for the manufacture of products covered by the agreement;
- (ii) the content of the technology transferred is in itself full and complete for the purposes of the agreement;
- (iii) the technology obtained will in itself be capable of achieving a predetermined level of production under the conditions specified in the agreement;
- (iv) national personnel shall be adequately trained in the operation of the technology to be acquired and in the management of the enterprises;
- (v) the technology is the most adequate to meet the particular technological requirements of the recipient given the supplier's technological capabilities;
- (vi) the recipient shall be informed and supplied with all improvements on the techniques in question during the lifetime of the agreement;

(vii) where the recipient of the technology has no other technological alternative than acquiring capital goods, intermediate inputs and/or raw materials from, or selling his output to, the technology supplier or any source designated by him, the prices of the articles shall be consonant with current international price levels;

(viii) for a certain period of time the supplier shall guarantee to provide spare parts, components, and servicing of the technology without additional charges for maintaining this guarantee;

(ix) all transfer of technology arrangements should include a provision by which if licensor grants more favourable terms to a second licensee these terms will be automatically extended to the first licensee.

9. The recipient shall guarantee that:

- (i) the acquired technology will be used as specified in the contract;
- (ii) all legitimate payments as specified in the contract shall be made to the technology supplier;
- (iii) the technical secrets as defined in the contract shall be honoured;
- (iv) the quality standards of the products specified in the contract will be reached and maintained where the contract includes the use of the supplier's trade mark, trade name, or similar identification of goodwill.
- (v) the socio-economic conditions and needs of the country of the recipient have been taken into account while entering into a technology transfer agreement.

#### Action by Governments

10. Governments of developing countries shall, if they have not already done so and consistent with their development objectives and social and economic policies, take the necessary legislative and administrative measures to enforce the application of the standards on transfer of technology as set out in Sections 3,4,5,6, 7,8, and 9 of the present Code.

11. Governments of developed countries, both with market and socialist economies, recognize the rights of developing countries to take the necessary measures set out in the preceding paragraph and shall accept the standards set out in this Code, and encourage the transfer of technology to developing countries based on these standards.

#### Laws and Jurisdiction for Settlement of Disputes

12. The following provisions shall govern the procedures or jurisdiction and settlement of disputes:

- (i) the technology transfer agreements between technology suppliers and recipients from different countries should be subject, with regard to their scope, enforcement and interpretation, to the laws of the technology-receiving country;
- (ii) in the event of a dispute between a supplier of technology and a recipient of technology, legal jurisdiction for settlement of the dispute shall reside in the courts of the technology-receiving country;
- (iii) if the laws applicable to the technology transfer agreements do not exclude recourse to arbitration in this field and the parties concerned agree in their contracts to submit their possible disputes to arbitration, such disputes will be settled according to the procedures set out in the contract;
- (iv) in order to permit the solution of technical disputes at an early stage and thus minimize the need for legal arbitration or judicial settlement of disputes, parties may insert in their arbitration procedures provisions whereby disputes of a technical nature would be submitted as soon as possible after they arise to impartial technical experts appointed in a way acceptable to all parties concerned.

#### International Organizations

13. The international organizations, within the limits of their competence, shall assist the developing countries in the application of the standards of the Code on Transfer of Technology.

#### Measures According Special Treatment to Developing Countries

14. In addition to the provisions of Sections 4,5,6,7,8 and 9, transfers of technology to the developing countries shall include

forms of preferential treatment designed to take account of the weaker position of their enterprises in the technological, financial or managerial field. To this end, Governments of developed countries shall by every means available ensure that their technology supplying firms grant preferential measures in transactions involving the transfer of technology to developing countries. Such measures shall include, *inter alia*:

- (i) phasing out of down payments, or including such payments as part of royalties on production, on a soft basis;
- (ii) scaling down of the charges for technology in proportion to the size of the recipient's market;
- (iii) untying of credits for the purchase, from the most competitive source, of capital goods, spare parts and intermediate components;
- (iv) rebates on imports of raw materials, equipment and components for licensed production;
- (v) development of local technological capability and R & D by technology suppliers with affiliated companies in developing countries;
- (vi) development of the R & D and technological capability of the recipient firm;
- (vii) adapting the technology to be transferred to make it appropriate to conditions and factor endowment of the recipient country;
- (viii) transferring to the recipient firm non-proprietary technology which the supplier may possess in the field of activity of the recipient;
- (ix) sub-licensing rights under special concessional terms.

#### Implementation and Revision

15. The Code of Conduct for Transfer of Technology should be the object of a multilateral legal instrument to be internationally negotiated and agreed upon, and to become binding on signatories once the conditions for its entry into force, to be established in the legal instrument itself, are fully met. In addition, such instrument should further define the necessary measures for the full implementation of, and full compliance with, the Code of Conduct, as well as establish the conditions for its revision.

*Through this new feature 'The Forum', the Marga Journal hopes to provide an opportunity to readers to comment on important issues which are of current interest. This section would of course be different in purpose and content from the rest of the journal. The contributions which would be welcome in the Forum are perceptions, comments regarding current social and economic trends, sensitive probing of public norms and accepted values, insights into recent events. The discussion in the 'Forum' will have to be disciplined within the objective pursued by the Institute. While being objective and analytical, it would have to eschew partisan argument or propagandist presentation. The current issue reproduces the text of a talk given by a University Don on the establishment of the University Campus in Jaffna.*

### AIMS AND IDEALS OF UNIVERSITY EDUCATION\* HILARY CRUSZ

It was only a little over a month ago that I visited Jaffna last, to talk on University matters. Since then, a University Campus has been established here by as simple a process as a Gazette notification. This should stir our sense of wonder and lead us to ask, if we have not asked before, what is a University and what are its aims and ideals? Those responsible for establishing Universities and Campuses must, of course, be knowing all this.

Whereas, in my previous address to the school Principals of your Province, I dealt with certain specific matters connected with higher education and the establishment of a University Campus in Jaffna, today I mean to deal more with general principles, while my colleague here will give you the more concrete details.

I am certainly not going to hark back to Taxila and Nalanda and Padua and Paris and Oxbridge. If I do, many people will react strongly, and label me ancient, medieval and obscurantist. I would not come even closer to our time by reminding you that Cardinal Newman, who gave us the definition of a gentleman, also gave us his idea of a University, whose basic function, according to him, is to train good members of society. Thus, at that time, the social responsibility of a university already came somewhat into focus. But not quite as much as now, because what was meant by society then was after all an elite with certain class values and prejudices that had to be maintained at all costs. We should

\* The text of a Talk delivered at Trimmer Hall, Jaffna, on 10 August, 1974 under the aegis of the Council of Public Affairs and the Parents' Association of Jaffna, at a consultation in the light of proposals for a University Campus in Jaffna.

ask ourselves, however, whether elitism could be eliminated altogether, whether one sort of elite would disappear only to be replaced by another and whether, after all, there would not always be an elitism of the mind.

I shall come, therefore, right down to our times, to the University here and now, not anywhere and everywhere, but in our Third World. It is only then that we would be able to see whether the word University is used univocally or equivocally in our parts of the world, in this somewhat bewildering race for establishing Universities and Campuses almost by the waving of magic wands.

In the ever increasing literature on the subject of tertiary education in under-developed countries, three recent statements impress me greatly. The eminent Nuclear Physicist, D. S. Kothari, Chairman of India's University Grants Commission, has penetrating insights of the nature and functions of a University, in his Dadabhay Naoroji Memorial Lectures of 1968, on education, science and national development. Colin Leys, Professor of Government at the University of Nairobi, discusses (1971) the role of the University in an under-developed country and asks whether it is an instrument of development or an instrument of under-development. And, only last month, Jamaica's Prime Minister, Mr. Michael Manley, gave what he called 'a mere politician's' keynote address at the Commonwealth Conference of Education Ministers held in Jamaica. It is a wise and penetrating analysis by one who could only euphemistically be called 'a mere politician'. I shall draw on these three inspiring addresses as I go along, in order to extract from them what we all want to know, namely the essence of a University wherever it might be situated, and how we could or should ensure that ours in Sri Lanka, with its newest campus in Jaffna, will have the marks of a real University. I shall be brief, since I have to share time this morning with my colleague from the Department of History.

I start with the proposition that a University is fundamentally a place for both teaching and research; where the critical attitude is developed to its highest pitch; where thinking is both independent and courageous; where knowledge is not only imported, and retailed to the local community, but also exported (in Kothari's words, it is "a port of commerce in the great ocean of international knowledge"); a place for furthering not only national integration

but internationalism as well, and for contributing, directly and indirectly, to national productivity; and, last but not least, a place for "creative interaction between science and spiritual thought and insight", according to Kothari, who ends his thesis with these telling words: "for man an unexamined life is not worth living".

From all this, we see quite clearly that the University undoubtedly represents the apex of the educational pyramid in a country, and this leads us to the question: whose task is it to establish and maintain this apex, as much as the rest of the pyramid and by what process is it established and maintained?

It is Prime Minister Manley's view that education is always an extension of political purpose. Indeed, he says, it is *the* primary agent that is available for that purpose. I think we have to agree with this view. Thus, the University, which is the apex of the educational pyramid, would be the most powerful agent for that purpose, and it has to be a political concern in the modern world. This is not to say that it was not so before. Its political character was there right along, but hidden in various disguises, some religious, some cultural, some socio-economic and so on.

I can almost feel at this moment the beating with joy of many a political heart, at this brief exposition of Manley's heart-warming thesis. But they will soon be disappointed. Like a refrain running through a beautiful song, there is his clear and unequivocal insistence that by 'political' he does not mean at all 'partisan political', and certainly not the kind of politics that is impatient of debate (and, we might add, that muzzles and subdues). It is refreshing once in a while to hear such a statesmanlike utterance on the subject of education.

Several corollaries flow from what has been said so far.

First of all, the appointment of a vice-chancellor of a University or head of a campus, indeed of all other important officers and teachers, and the very establishment of these institutions, will have to be done with the true interests of these institutions at heart. In regard to the appointment of vice-chancellors, Kothari says: "One thing is clear: no method will succeed if there be brought in, even to a microscopic degree, considerations other than the true interests and well-being of the university." We have already seen what these true interests are.

A university will naturally reflect the social make-up and condition of the region. There will be poor universities and rich ones, capitalistic and socialistic ones, and even democratic and totalitarian ones. The very disciplines will tend to reflect the features of the university's local habitation. But in all this we must guard against allowing all such factors to efface, in various ways and degrees, those essential features of a university, which we have already briefly noted.

A university must think up, research, and teach, matters pertaining to the country's goals of development. This, says Colin Leys, cannot be left to others, such as the press, politicians and even the people. From this point of view, even the question of 'manpower needs' should be settled on the basis of the fundamental thinking and critical analysis practised in the universities.

This university's role in national and international integration will naturally include integration as regards language, race and religion. But we have to be honest enough to pursue this without discrimination, that is, not to talk glibly of integration on one campus while other campuses of a university are blatantly restrictive and privileged in this regard.

It should be clear by now that by its very nature a university has always to remain in a state of tension with whatever government is in power. Colin Leys expresses this succinctly; "some tension and even conflict is natural between universities and governments... The absence of any such tension should always be a cause for wonder and usually a cause for some concern... The problem on both sides is not to avoid it but to learn to accept it, manage it, steer it and turn it to advantage" and here I should specially like to refer to the discipline of science. I do not know how it is with other intellectual currency, but scientific propositions must be essentially falsifiable or else they would not be Science. Not false, but falsifiable. This is why scientists are basically suspicious of all establishments and their truths (even their own establishment and truths), and have the critical outlook developed perhaps to its highest degree. It is essential that governments and the people understand this. Science is a process. The social function of the scientist has, therefore, to be assiduously exercised. Not only did Galileo talk of taking astronomy to the market-place and of opportunity for power in the market-place, but Professor Lord

Zuckerman, the 20th century zoologist, urges scientists (and this goes for other university people as well) that the time has come not to leave it to politicians and newspapers to talk to the people about science and its social consequences, but to do it themselves.

All this does not mean that even the best universities do not sometimes fail to meet the urgent challenges in the course of their history. Einstein, for instance, bitterly regretted the failure of the German universities to raise their voice against at least the worst excesses of Nazism. He expected the universities to be concerned deeply about moral issues. So we come to our last point: a university must harmonise the things of the mind and those of the spirit. The secularisation of universities was a good thing, but it freed them from one kind of bondage, only to land themselves in another. We cannot go back, as I said at the start, to the ancient Oriental or European universities but we can look for those elements of harmony and reconciliation always and ever present in human thinking. We can learn to understand the spiritual power of matter and all that flows from it. Here I am treading on holy ground. In this we have nothing to teach those who profess and live the faith that is endemic to this region and to the greater part of India – the religion which the jesuit Johanns has called “the most searching quest in the natural order of the Divine that the world has known”.

“In a university campus established in such a place, moral purpose will loom large in its thinking and will be its first priority in forming the minds of its alumni.

It that case, let the first question posed be:- What does it profit a nation (and its university) if it gains the whole world, and suffers the loss of its own soul. Many things are happening in our country and in the world, about which we have to be watchful and vocal. And our University is silent. This is not to be wondered at, for, even our churches are silent. But silence often speaks louder than words.”

#### REFERENCES

1. The Gazette of the Republic of Sri Lanka (Ceylon) Extraordinary. No. 121/5, 25 July 1974.
2. Crusz, H. 1974. Address to the Northern Province Principals' Association at its Annual General Meeting, Jaffna, 5 July 1974.

3. Newman, J. H. 1852. *The Idea of a University*. London: Longmans, Green. 1921 & 1947.
4. Kothari, D. S. 1970. *Education, Science and National Development*. Bombay: Asia Publishing House.
5. Leys, C. 1971. The role of the university in an underdeveloped country: instrument of development or instrument of underdevelopment. Lead Speech at Fifth Commonwealth Education Conference, Feb. 1971. 15 pp. London: Commonwealth Secretariat.
6. Manley, M. 1974. Keynote Address at Commonwealth Conference of Education Ministers, Jamaica, 1974 (Mimeographed copy. 7 pp).
7. Popper, Karl R. 1959. *The Logic of Scientific Discovery*. London: Hutchinson.
8. Santillana, G. de. 1961. *The Crime of Galileo*. P. 15 et seq. London: Mercury Books. Also, Bertolt Brecht: *The life of Galileo*. London: Methuen. p. 118, quoted by Colin Leys., *op. cit.*
9. Zuckerman, S. 1967. The limitations of advisers. *Nature*, Volume 214, p. 341, (and the editorial on it, p. 333).
10. Einstein, A. 1944. Reported in *The Tablet*, London 30 December 1944.
11. Johanns, P. 1935. Hinduism: in *Studies in Comparative Religion* Vol. 1. London: Catholic Truth Society.



**FOREIGN SUBSCRIPTION FORM**

**Publications Unit  
Marga Institute  
61, Isipathana Mawatha  
P. O. Box 601  
Colombo 5  
SRI LANKA.**

*Please send me 4 issues of MARGA to my address, given below.  
I enclose a cheque/Bankers Order in your name for U.K. £2.90,  
U.S.A. \$ 8.00, Australia \$ 4.90, India Rupees 32.50, including postage  
(strike off whatever is inapplicable).*

**NAME**.....

**ADDRESS**.....  
.....

**COUNTRY**.....

**DATE**.....

.....  
*Signature*

*Cheques payable to 'Marga Institute'.*

**LOCAL SUBSCRIPTION FORM**

**Publications Unit  
Marga Institute  
61, Isipathana Mawatha  
P. O. Box 601  
Colombo 5  
SRI LANKA.**

*Please send me 4 issues of MARGA to my address, given below.  
I enclose a cheque/Bankers Order/M.O./P.O. in your name for  
Ceylon Rupees 21.00, including postage, (strike off whatever is  
inapplicable).*

**NAME**.....

**ADDRESS**.....  
.....

**DATE**.....

.....  
*Signature*

*Cheques payable to 'Marga Institute'.*



# MARGA PUBLICATIONS

*Now Available*

*Research Studies:*

1. NON-FORMAL EDUCATION IN SRI LANKA Rs. 15/-
2. WELFARE AND GROWTH IN SRI LANKA Rs. 8/-
3. THE CO-OPERATIVE SYSTEM AND  
RURAL CREDIT IN SRI LANKA Rs. 10/-
4. THE SINHALA READING PUBLIC Rs. 5/50

*Seminar Papers:*

1. RELIGION AND DEVELOPMENT  
IN ASIAN SOCIETIES Rs. 10/-
2. YOUTH, LAND AND EMPLOYMENT Rs. 10/-

*For more details of Marga Publications, please write to:*



The Publications Unit  
**THE MARGA INSTITUTE**  
61, Isipathana Mawatha  
Colombo 5, SRI LANKA