

PROPOSALS FOR A SEED POLICY FOR SRI LANKA

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INTRODUCTION

Sri Lanka's agricultural policy aims at increasing national production mainly through yield increase per unit area of land. Of the domestic food sector, rice has received the highest consideration up to recent times. However, greater attention is now paid to diversification of crops to meet the country's needs of food other than rice. The strategic base of the overall policy consists of the use of high yielding improved varieties of crops, improved crop management, optimum use of available resources of land and water, input supplies (fertilizer, agro-chemicals and equipment), credit, marketing and other agrarian services to farmers. Experience in most countries has shown that the most significant of the agricultural inputs is **seed of improved varieties of crops**. This alone triggered rapid and favourable changes in agricultural development and production in most developing countries in recent times. Sri Lanka is no exception and improved seed of superior varieties bred by the team of plant breeders of the Department of Agriculture became the most efficient tool in the hands of agricultural extension officers. Whenever quality seed of improved high yielding varieties were accepted by farmers, they also readily accepted better crop production technology that was offered along with the seed. Thus seed proved to be one of the best means in technology transfer to thousands of Sri Lankan farmers.

With the above background, the Government of Sri Lanka gives very high priority to the seed programme in its agricultural strategy. Its objective is to ensure a regular flow of high quality seed of recommended varieties to all farmers, rich and poor.

Apart from meeting the country's internal needs, Sri Lanka has all possibilities of stepping into international seed and planting material trade to increase its foreign exchange earnings. There is already evidence of a build up in this direction within the private sector.

A well conceived and efficiently managed seed programme, therefore, is a vital need. For this purpose, the primary requirement is to frame a **National Seed Policy**. Such a policy has to be forward-looking and should consider the current situation of the programme, experiences of the past and of other developing countries, expert information from agencies (external and internal) and the special features of the country's social and economic framework. The needs of the smallest farmer has to be met whilst the general benefits of a seed industry are reaped.

BASIC FEATURES OF A NATIONAL POLICY

A national seed policy must clearly outline the following:

1. Importance and relevance of the seed programme and its integration with national programmes of agricultural development;
2. Short, medium and long-term objectives of the seed programme relevant to the phased development of agriculture;
3. Clear policy on seed industry development (Govt., semi-govt. or private sector) to meet local and export needs;
4. Policy on seed trade development, seed pricing, seed export and import;
5. Seed production goals;
6. Role and responsibilities of the Govt., semi-govt. agencies, co-operatives, companies and private sector in the total programme or in different components of it, viz.

Variety development

Variety evaluation and release

Seed production (inclusive of harvesting, drying, processing, storage, etc.)

Seed distribution and marketing

Seed quality control

Education, training, extension;

7. Type of institutional framework and infrastructure being provided;
8. Broad policies that would attract assistance, participation and investments in the programme from internal or external organizations (inclusive of aid agencies);
9. Commitment in the national budget for financing the programme, and need for credit, incentives, manpower, equipment and such other needs, without which the programme may fail;
10. Means of guiding, co-ordinating and monitoring the total programme.

PRESENT STATE OF DEVELOPMENT OF THE SEED PROGRAMME

A National Seed Policy is often the outcome of a comprehensive review of the existing seed programme which has developed over the years and within which certain matters on policy may already have been identified and followed. This document attempts to bring together such information and provide an outline of a basic policy for the expansion of the seed industry. It is

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recommended that later on a competent seed review team may have to be appointed to study and suggest further improvements to the national seed programme.

As a preliminary step, the present stage of development of the seed programme should be taken into consideration. In general, four stages of seed programme development can be indentified:

1. Supply of seed of varieties to some farmers by the researchers, plant breeders and *ad hoc* spread of seed thereafter.
2. Seed from researchers/plant breeders is multiplied by them or by certain growers or in government farms and distributed with or without seed quality tests.
3. A general seed policy is identifiable and certain programmes in seed production, quality control (through seed testing and certification), marketing, training, advisory work are in operation, though not reaching the desired levels of operational efficiency.
4. The national seed programme and policy are re-examined, strengthened, a seed industry involving public and private sector is established, seed laws are in effect, training and advisory work, quality control are regularized and made operative.

Sri Lanka has reached Stage 3. However, it is clearly seen that certain components of the seed programme are strong and others are yet weak. Strength or weakness depends on the priority given to the crop itself. For instance, the seed programme in rice is well within Stage 3 and is ahead of other field crop programmes on vegetables, coarse grains, grain legumes.

REVIEW OF THE DIFFERENT COMPONENTS OF THE SEED PROGRAMME

All components of a seed programme are listed below. It will be noticed that these components at present fall within the responsibility of the Department of Agriculture.

1. Crop improvement, variety development and seed research.
2. Variety evaluation and release.
3. Initial seed increase.
4. Seed production (building a seed supply), seed distribution and marketing.
5. Seed quality control.
6. Seed extension, sale and advisory functions.
7. Training and personnel development.
8. Resource availability, continuing financial support to programme.
9. Planning and co-ordination (National Seeds Committee).
10. Seed legislation.

Crop Improvement, Variety Development & Seed Research

A strong research base is a pre-requisite to a Seed Programme. In rice, crop improvement research is strong and better supported than in other field crops. As much as 85% of the annual total sown extent is covered by improved high yielding rice varieties bred by Sri Lankan plant breeders. In case of coarse grains, grain legumes and vegetables, superior varieties are now available.

The search for better varieties suited to specific conditions, for export and other needs has been intensified lately by the Research Division of the D.A. The eight Agro-ecological Regional Research Centres with their sub-stations and Adaptive Research Centres are being equipped to meet the needs of variety improvement and selection and crop management research. Plant breeding programmes are being co-ordinated with emphasis on specific breeding objectives.

In planning for the future *the objectives on crop research and breeding* have to be examined in the light not only of domestic needs but also of export potential. To achieve these objectives the seed policy must clearly accept the need for adequate resources and training facilities on crop improvement research and development.

Seed Research is an integral component of a National Seed Programme especially in a tropical country like Sri Lanka. Problems on seed storage, dormancy, control of storage pests and seed borne diseases are often encountered. The D. A. should mobilize the Research Staff and Seed Certification Services Staff for handling basic seed research problems.

Variety Evaluation and Release

For this purpose a standard procedure has been worked-out for rice and similar procedures are being followed in a few of the other important field crops. Better varieties emanating from the Research Divisions are tested regionally in Co-ordinated Regional Variety Trials, Variety Adaptability Trials and other verification trials in farmers' fields. On the performance of the better varieties in farmers' fields extension workers and farmers jointly accept the most promising varieties for the area and the breeders place this information before the Variety Release Committee which is a sub-committee of the National Seeds Committee. The V.R.C. has the responsibility to recommend suitable varieties to the N.S.C. The N.S.C. has the authority to approve the recommendations for national or regional use and get the varieties listed in the Variety List of the Seed Certification Service.

The Seed Policy has to lay down clear procedures on evaluation and release of varieties, registration of varieties recommended by the N.S.C. on incentives to plant breeders and so on.

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Initial Seed Increase

The purification and maintenance of purity of the recommended varieties and the regular supply of Breeder Seed (Br.S.) is presently the responsibility of the Plant Breeders of the Research Division of the D. A. Following this is the increase of Basic Seed (B.S.) or Foundation Seed (F.S.), which is a joint responsibility of the Farms and the Research Divisions of D.A. Such seed is certified by the S.C.S. Failure to produce quality seed at this initial stage will mean a complete failure of the total seed programme as was seen in certain crops other than rice in the past.

The Seed Policy should fix responsibilities for both Breeders Seed and F.S. production and emphasize the need for following correct procedures and technology. Whether the S.C.S. should have greater involvement in initial seed increase or whether there is the need to develop a basic seed project are matters for consideration.

Seed Production, Distribution, & Marketing

All aspects of the seed programme from variety improvement to seed marketing and distribution remain the responsibility of the Govt. Department of Agriculture (D.A.). Whilst the Research Division of the D.A. is responsible for variety improvement and release, the Extension Division at the other end is responsible for estimating seed demand, for promoting use of quality seed and making the bulk of seed sales to farmers through the Extension Centres. The Farms & Horticulture Division (in other words, the Seed Production Division) has, therefore, *the major responsibility of seed production, seed processing, storage, seed import, distribution and also seed quality control.*

The Farms & Horticulture Division of the Department of Agriculture thereby plays an *exclusive role in the country's Seed Programme*, and may have to continue this role and give the necessary leadership to a Seed Industry in the future. This division has the basic infra-structure for a Seed programme built over several years. It has 14 Regional Seed Production Processing and Distribution Centres. 46 Seed Production Farms and Seed distribution warehouses in all the districts of the country. The F. & H. Division produces and distributes annually *ten percent of the total seed paddy needs* of the country. It also produces and supplies *a major share of vegetables and other field crop seed* after tests or germinability and physical purity. Foundation and Registered Seed is produced in its farms and bulk of the Certified Seed is contract grown through selected private growers. The contract grown seed is procured, processed, stored and distributed by this Division.

In addition, this Division is the only importer and distributor of seed potato and seed of exotic vegetables. However, it has now been decided to curtail the seed imports drastically as local seed production has proved a

success. Seed potato imports for the Yala Season here been stopped and a successful system of rustic seed storage has been introduced to enable farmers to retain seed from the Maha Season's harvest. For the Maha Season only a smaller quantity of Basic Seed Potato will be imported for further seed increase. Work is in progress on the use of true seed in potato propagation.

Seed of local vegetables is produced in the country; the import of seed of beans, tomatoes, radish and others which can be produced locally has been reduced considerably. Imports are presently restricted to seed of exotic vegetables, of which economic seed production is not possible within Sri Lanka yet.

Seed processing and storage are important aspects of the seed programme which have received much attention. The recent quality improvement in seed is considered a direct benefit of seed processing. Many external agencies like the Methodist Church of Australia, F.A.O., West German and Dutch Governments and the World Bank have supported this component of the seed programme. However, the efficiency of seed processing will depend on proper operation as well as constant repair and replacement of the equipment.

Seed storage needs improvement and expansion at the levels of Regional Seed Production Centres, District Warehouses and also at the Agrarian Service Centres which can be considered the retail outlets. Feasibility of seed treatment for storage and prevention of seed borne diseases has to be studied.

Seed distribution up to the district warehouses and storage in them is the responsibility of the Division, whilst seed distribution and sale beyond the district warehouses at the Agrarian Service Centres or at other sales points is done by the Extension Service of the respective areas. As stated earlier, seed sale through the Agrarian Service Centres and through Extension personnel helps both the transfer of improved technology to farmers and also engenders a proper feed back.

Seed marketing needs greater attention for the improvement and expansion of the seed industry. Realistic seed pricing, improvements in marketing and in the private seed trade need to be encouraged, whilst pursuing the present policies of expanding the use of high quality seed in the poorer sectors of the community. Different classes of seed must be realistically priced unlike as it is today, when all classes of seed are priced the same.

Presently, *seed demand* is assessed on information gathered from the Assistant Directors of Agriculture (Extension) of the 24 Districts. Also the production capacity of the Farms Division is considered in fixing these targets of production. Often the assessed seed demand does not reflect the actual final demand. Some farmers although in want of better seed prefer to use their own seed due to lack of credit facilities. Most self-pollinated crop seed is

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saved for seed by farmers. Short supply of seed often results from a varietal switch over on age-class resulting from changes in rainfall and water availability. Seed demand rises beyond expectations due to crop failure in previous seasons, when seed producers are affected in as much the same way as the rest of the farmers. A programme for retaining *buffer stocks* (Seed Banks) is now under consideration to circumvent situations of this nature.

In conclusion, it can be stated that the Asst. Director of Extension will yet be the best source of assessing a realistic seed demand based on systematic gathering of information on extents, desired levels of varietal coverage, renewal patterns, past performances and levels of buffer stock. Whatever the source of seed demand, the seed producer (F. & H.) Division has to build up its own arm of seed assessment, distribution and marketing, and buffer stocking with the direct assistance of the Extension Division of the D. A. and the Paddy Marketing Board.

Seed packaging in convenient marketable units with labels is becoming an important requirement and attention is now being directed to this aspect.

A clear govt. policy in regard to the future of the Seed Industry is needed. Could the govt. undertake the National Seed Programme within its limitations of funds or should it not encourage a private seed industry supported by definite supply and service functions from the government's own departments? What are the changes that should be made in the Farms Division of the D.A. to provide leadership to a Seed Industry? Should a National Seeds Corporation be formed as in India to give leadership to a Seed Industry? Should not a seed export programme be encouraged with participation of the private or semi-govt. sectors? In the event that these decisions are made how should the future programme be phased-out and what control should the government exercise? What incentives will the government offer?

Seed Quality Control

Seed quality control is a vital component of a seed programme and no seed industry can be maintained without quality control. This should ensure the use of genetically and physically pure seed of the recommended improved varieties with high germinability and vigour. A seed quality control system that started with only seed sampling and testing and advice on quality seed production as far back as 1960 has now developed into a *Seed Certification Service* (S.C.S.) assisted by the Dutch Govt. with the following components: field inspection, seed sampling and testing, post-control, variety identification and certification. It operates in all Seed Production Regional Units (14) and is responsible for the certification of seed paddy. Certification of vegetable and other field crop seed will commence fully by 1984 and until then the germinability and physical purity are tested by the two *Seed Testing*

Laboratories of the S.C.S. These Laboratories follow the rules of the International Seed Testing Association, of which Sri Lanka is a member. *Post-control tests* (grow-out tests) have been initiated by the S.C.S. for checking effectiveness of certification and also to identify problematic seed lots. A *variety section* is also being built for cataloguing field identification characteristics of varieties. This unit will also test (in the grow-out tests) the 'trueness to variety' of imported vegetable seeds.

Seed research is an important item, where the Seed Certification Service with its laboratory facilities can couple with the Research Division in solving certain day to day problems in seed production and usage.

Policy in regard to quality control must take into consideration (a) the adequacy of the Seed Certification System, (b) the need for the functioning of the S.C.S. *independently* of the Seed Production Division (c) the adequacy of seed testing facilities and staff training, (d) the need to have reasonable seed standards, (e) the registration of all recommended varieties and (f) the proper utilization of the S.C.S. facilities and information in initial seed increase and future seed control activities inclusive of seed legislation.

Seed Extension, Sales and Advisory Functions

The Training & Visits System of Agricultural Extension (T & V) now in operation throughout the country enables the Extension Officers to be in regular and close contact with all sectors of the farming community.

The system, through its regular fortnightly training of officers and monthly dialogues between subject matter officers and researchers, assures a continuing up-dating of the knowledge and skills of the village level (KVS) and divisional level (AI) extension workers. It provides a medium for the two-way link between the research worker and the farmers. The extension worker who meets the farmer every fortnight armed with relevant and timely information and skills which are of use to the farmer, also assists the farmers in the use of improved seed and brings back the farmer reactions.

Rural Secondary Seed Farms in paddy has been in operation for sometime. This was initiated chiefly to ensure the wide-spread use of high quality seed among all farmers with minimum expense to the government. As no Govt. institute can provide seed to all farmers, the scheme of R. S. S. Farms was considered another means of ensuring the regular use of high quality seed. It is only an attempt to *improve and expand the traditional seed exchange systems* prevalent in different forms in different parts of the country. The system is only a single generation's seed increase among farmers. Basically, seed paddy of the Registered Seed class is channelled through the Agrarian Services Committees (100-200 bushels per A.S.C.) for a season's multiplication by selected

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farmers within its area of authority and lateral spread of this seed among its member farmers is encouraged. This scheme is a success in certain districts. It needs to be studied further and altered to suit the local conditions.

To reach the smallest and the poorest of farmers or to introduce a newly recommended variety of which there may be insufficient seed stocks, distribution of *small packs* of seed (in case of rice about 1–3 kg) has been found to be of great benefit. This system too could be encouraged further. The need for high quality seed is greater with the small farmer.

Training and Personnel Development

As in most other fields of agriculture, training and personnel development is important for a successful seed programme. Presently, training is provided through foreign aid. But, this is found to be insufficient. Under the standard agronomic curricula, there is yet insufficient attention paid to *seed technology* and there is the need to provide: (a) professional training with specialization on disciplines such as seed production, processing, quality control, research, seed health, development etc. (b) specialized and practical training in areas of seed technology related to the different positions of the staff who are operating the programme, (c) in-service training, (d) information and support to extension *staff through seed specialists*.

A government commitment is necessary to provide the requisite staff and to train them in a regular manner.

Resource Availability and Continuing Financial Support to the Programme.

For expansion of the programme to become a seed industry, the available resources of land, buildings, equipment, human and other resources may have to be supplemented with non-government sector investments and with external assistance. These are matters that have to be looked into after a clear policy is known.

Financing

A seed programme requires initial investment capital and a working capital. *Initial capital* costs are required for land, equipment, harvesting, threshing, drying, processing, treating, packing, transporting, testing, inspection and quality control, facilities such as sheds, processing plants, storage warehouses and for general production operations, tractors, cultivators, irrigation systems, land levelling and so on. The needed capital has been provided to the D.A., both by the Govt. of Sri Lanka and from external grants, and development loans.

It is important to note that *additional capital will be needed from time to time for replacement of equipment and for expansion of activities*.

Non-government participants in a seed programme will need a guarantee from the Govt. that there will be no serious financial barriers in obtaining equipment and facilities (not available locally) for which foreign exchange is needed.

A private seed industry needs tax concessions in view of its wide impact on the farming community.

Working capital is needed for the operation of a seed programme and is similar to normal production credit. Contract growers have to be paid before realising returns from sales. It is important to remember that in this case turnover of working capital is relatively slow. When funds are not provided in time for the operational aspects of the programme, the programme could be stifled.

A properly managed seed programme should in time be self-supporting and reasonably profitable, but this cannot be achieved in a few years. It is important that seed pricing should be realistic to achieve these objectives. It should be noted that costs are involved in State obligations to the seed programme on seed testing, certification services to farmers, inspection and control of seed marketing, breeder, basic and registered seed production, training, technical assistance and advisory services to producers as well as investments on adaptive research, extension and marketing.

Adequate cash flow is critical for successful seed operations. A State department with its inherent commitments to serve the public, to provide employment and adhere to procedural requirements and red tape, finds it difficult to show financial benefits.

Seed Pricing Policy

Presently different classes of seed, viz., Foundation, Registered or Certified are priced the same. The early generations should cost more. Seed prices kept at equivalent grain price or subsidized may attract good seed to the ordinary consumer market. This will prevent the participation of seed growers who will actually expect an equitable rate of return on investments after actual costs of seed production are set-off. Non-government seed sector cannot survive if the seed prices do not reflect the actual costs of seed production based on the same factors. Also, seed prices should not be too high so that farmers who really need quality seed will be forced to save seed from their already poor crops (especially self-pollinated crops) rather than replenish or renew with high quality certified seed. Ready availability of production credit to farmers will help seed renewal.

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Planning and Co-ordination of the Seed Programme

The National Seed and Planting Materials Committee, was set up in 1975. Among its many functions are the following:

Outline a seed policy dealing with internal production, import, distribution and marketing.

Create a Variety Release Sub Committee and a Seed Certification Service and a Seed Standards Sub Committee.

Formulate a National Seed Programme involving all classes of seed of important crops.

List varieties eligible for certification and approve standards.

Encourage development of semi-government, co-operative, private or other agencies in production and sale of high quality seed on commercial lines.

Ensure high quality seed usage by farmers.

Outline education and training plans.

Provide advice and assistance to crop breeding and to seed projects.

Co-ordinate external aid programmes, and

Work-out a policy and system to meet seed needs in national emergencies.

Director of Agriculture heads the N.S. & P.M. Committee and it consists of Deputy Directors of Agriculture Research/Farms/Extension/Education & Training and representatives of the Ministry of Agriculture and Faculty of Agriculture of the University of Sri Lanka. The Deputy Director (Research) heads the Sub Committees. The scope and functions of the N.S. & P.M. Committee must be widened to suit the present day needs of the seed programme and its composition improved to make it a strong policy making body.

Seed Legislation

As there is no seed legislation in the country the question of a legal base for seed quality control needs attention. However, seed legislation must be developed in stages so that it can be of direct benefit to the development of the seed industry. It should, initially, promote the objectives of a seed programme and its development and also assist in the establishment of the infrastructure and institutional needs of the programme. An area where seed legislation can have an immediate impact is in seed imports. The formulation of a Seeds Act is recommended.

RECOMMENDATIONS FOR A NATIONAL SEED POLICY

1. The Government of Sri Lanka accepts the need for a clear policy on seed in consideration of the positive role that seeds of improved crop varieties play in the strategy of increasing production and enhancing rural incomes.

2. The Government's objective is to encourage and ensure that all farmers, irrespective of their economic standing, use high quality seed of improved varieties and have ready access to such seed at the beginning of each cultivation season.

3. The Government will actively promote and encourage the development of a seed industry to meet local needs as well as to ensure positive involvement of the industry in foreign seed trade. After a review of the programme, the Government will consider the creation of a National Seeds Corporation utilizing the available resources of land, buildings, equipment and personnel in the government sector.

4. Although the major efforts in the initial planning and implementation of a seed programme rest with the Department of Agriculture, the Government will actively encourage the participation of the non-government sector (Corporations, Companies, Associations, Private Individuals, etc.) in Seed Production and Marketing. Encouragement will include incentives in credit, tax concessions, availability of facilities, land, equipment, technical assistance, accessibility to basic or foundation seed, maintaining a realistic price structure for seed etc.

5. For overall supervision, direction and co-ordination of the National Programme on seed, the Govt. will appoint a *National Seed Board*, thereby expanding the scope and responsibilities of the present National Seeds and Planting Materials Committee located in the Department of Agriculture.

The N. S. B. to be headed by the Secretary of Agriculture or the Director of Agriculture, as the designated representative of the Hon'ble Minister of Agriculture, with named representatives from:

Ministries dealing with Agriculture, Finance and Planning, Trade and Food.

Divisions of the Department of Agriculture (Deputy Directors).

The University—Faculty of Agriculture.

Credit Institutions.

Farmers (nominated by the Hon'ble Minister of Agriculture).

Seed Industry and (non-govt.) Seed Trade.

Quality Control Unit.

Any other members.

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The membership to be around ten and all members to be appointed by the Hon'ble Minister of Agriculture on the recommendations of the Secretary and Director of Agriculture. The Deputy Director (Farms & Horticulture) of the Department of Agriculture as chief executive of the seed programme development and implementation will be appointed the Executive Secretary of the N. S. B.

N. S. B. to have its headquarters at the Department of Agriculture.

Functions of the N. S. B.

Overall supervision and direction of the National Seed Programme on the lines indicated in the National Seed Policy;

Formulate a broad seed production and supply strategy and advise the Hon'ble Minister of Agriculture on major aspects of policy:

Review (via a competent body) the present programme and policies on seed and establish concrete policies on the different components of the programme for the future;

Establish seed production goals in relation to demand;

Take necessary action to develop a seed industry in the semi- or non-government sector and suggest methods to encourage local and foreign seed trade;

Advise government on organization, management and financing of the programme;

Recommend corrective action to eliminate impediments to the development of the seed programme;

Recommend measures in seed distribution, marketing, pricing, export and import of seed;

Direct activities of the different committees under it, viz., Variety Release Committee, Seed Standards Committee, Seed Import Committees etc. and approve their recommendations and approve registered variety lists;

Review and approve crop breeding objectives to suit local and export needs;

Approve clear procedures of variety evaluation, release, registration, maintenance of purity and initial seed increase;

Monitor and evaluate the entire seed programme in the public and private sector so as to reach the objectives of the National Seed Policy;

Recommend to the agencies involved, inclusive of the D. A., measures to ensure ready availability of high quality seed to farmers;

Outline educational and training plans to improve the capabilities of personnel involved in seed activities;

Provide advice and assistance to crop breeders (breeding objectives);

Recommend action to meet seed needs under situations of emergency;

Co-ordinate (or advise on the co-ordination of) different agencies, chiefly external aid agencies, so as to avoid unnecessary duplication; and

Advise the government on important issues, inclusive of seed quality control, seed legislation, etc.

6. The government accepts the timely allocation of adequate financial, physical, human and external resources to the local Seed Industry, inclusive of its component to the Department of Agriculture as important.

7. The Ministry and Department of Agriculture will be responsible for:

Providing leadership in seed programme planning, development and implementation;

Integrating the seed programme with the national strategy for agricultural development;

Providing services of:

(a) crop research and development of varieties;

(b) variety evaluation and release;

(c) initial seed increase;

(d) seed quality control (certification, seed testing, etc.);

(e) supply of all basic (foundation) seed;

(f) agricultural extension, education and training;

(g) technical guidance, information, economic assistance to semi-or non-government participants in the seed industry;

(h) seed legislation.

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The government will strengthen these components. The listed functions will ensure continuing support to farmers and to the semi- and non-government sectors that undertake the production, processing, distribution and marketing of seed.

8. The government will appoint a Seed Review Team of competent people to study all aspects of the seed industry development programme before any major changes are effected and some of the present functions of the government sector are jettisoned.

9. The government will curtail seed imports excepting basic seed requirements necessary for seed increase in potatoes and some of the exotic vegetable seeds of which local seed production is not feasible.

10. With the assistance of the N. S. B., the government will draw up a *Seeds Act* that will initially outline the basis for the build up of a seed industry and then frame regulations to safeguard the interests of the seed consumer.

11. To meet seed needs under certain urgent situations, the government will order the creation of *buffer stocks* or seed banks with assistance of the Paddy Marketing Board (equivalent of National Grains Authority in other countries) and of the Department of Agriculture.

12. The government on the recommendation of the Department of Agriculture will take positive action to implement a regular continuing programme of training and personnel development at the practical and professional levels utilizing external aid.

13. The government agrees to the continuation of the responsibility for *Crop Improvement Research, Variety Development, Evaluation and Release*, within the Department of Agriculture. It will be guided in its decision making by the N. S. B. In the long term, however, private plant breeding research will be encouraged with controls from the Department of Agriculture and N. S. B. Clear crop breeding objectives will be approved with D. A. and N. S. B. recommendations. The government will give high priority to provision of funds, training and facilities for an expanded programme on crop improvement, research, variety evaluation and release.

14. Research work on seed will be strengthened utilizing the facilities available with the Research Division and Seed Certification Service. This work will be closely linked with work on post-harvest technology, seed health and plant quarantine. Specific models on seed programme development in different crops will be developed by the Research Division.

15. The responsibility of *initial seed increase* which includes the purification and maintenance of purity of recommended and registered varieties, supply of breeder seed and the production of foundation or basic seed of these will be that of the Department of Agriculture in general. In particular the responsibilities will be fixed as follows:

Purification and Maintenance of purity, supply of Breeder Seed	Responsibility of Research Division/ Individual Plant Breeders or Groups will be named for each crop variety.
Production and supply of Foundation and Basic Seed	Responsibility of the Farms Div., but <i>with</i> the supervision of the Plant Breeders concerned and direct assistance of the <i>Seed Certification Service</i> , which must include certification by S. C. S.

Specific techniques for maintenance of purity of different crop varieties must be published and followed. Present procedures of Breeder and Basic Seed Production and supply will be reviewed with direct involvement of the Seed Certification Service that is developing the necessary expertise in cataloguing descriptive field identification characteristics of different crop varieties. The government may develop a Basic Seed Project if the need arises with expertise available and external support.

16. *The Farms & Horticulture Division* of the Department of Agriculture will continue to play its *leading role in Seed and Planting Material Production and Distribution*. It will, however, give the necessary leadership to promote a private seed industry and support a semi-government organization that may be set-up on the basis of decisions made by the N. S. B. The F. & H. Division will be guided by the decisions of the N. S. B.

The F. & H. Division will be guaranteed the necessary funds, both as initial and working capital, for the fulfilment of its approved programme. It will be guaranteed an adequate cash flow. It will be supported by a realistic pricing policy for seed, by removal of financial barriers and by timely decisions of the N. S. B. Its targets in seed production will be fixed on the basis of its role in the total seed programme as decided and fixed by the N. S. B. and its targets will be based primarily on the quantum of funds provided as initial capital, capital for replacement of equipment, and working capital from year to year.

17. The Farms & Horticulture Division of the Department of Agriculture being the foremost seed and planting materials producing organization will be strengthened to meet its role of leadership in the seed industry. Its name will be changed to suit its role. As working headquarters of the National

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Seed Board (the Secretary of which is the Deputy Director of the Division) its organization will be structured into two major sections at Headquarters which will be the present *Operational Section* with its own components of crop specialists and supervisory officers representing the regional and other field units (Seed Production and Processing Centres, Govt. Seed Production Farms, etc.). The relevant administrative and accounting staff too will be in the same section. The present organization of the Operational Section is good and may need strengthening in certain areas of activity. The additional section will form the *Seed Programme Planning* section, which will have a wider national role of being the centre of seed industry development. It will form the N. S. B. (Headquarters).

The chief officers of the Operational Section will have a vital role to play in the planning work of this section. In addition, however, this section will be strengthened with the necessary expertise in seed technology, planning, assessment of seed requirements, economics, marketing, etc. (No attempt is made in this document to give further details: only the idea developed in the National Seeds Committee about a decade ago is reflected here for further study, discussion and decision.). This Planning Section will have the main role of being the co-ordinating body that will influence policy making and will greatly assist in avoiding duplication of effort in the proper use of external aid and in maintaining a balanced programme of development in seed in all sectors.

18. Seed distribution, marketing and seed imports will remain the functions of the Department of Agriculture, but these functions will be gradually transferred to organized seed trading channels. Import and sale of seed by the non-public sector will be allowed, provided such activity is controlled by the State.

Seed of varieties that are not registered with N. S. B. approval, will not be imported. N. S. B. will indicate the varieties, quantities to be imported, from time to time. Quarantine regulations will be strictly adhered to.

The D. A. will be Competent Authority for granting the necessary approval. *Ad-hoc* imports of seed without the approval of the Competent Authority will not be allowed.

19. Extension and promotion of quality seed will remain a function of the Extension Division of the Department of Agriculture. The Farms Division, too, may build up its own promotion and marketing units in the future.

20. Training and Personnel Development for the Seed Industry's future progress will be given high priority through national as well as foreign training programmes. The N. S. B. will monitor and assist this programme.

21. The present scope of the Seed Certification Service will be expanded and strengthened with the view of checking the quality of local and imported seed and also certifying seed for international trade. This Service is making much headway with aid from the Dutch Government and has four sections:

Field Inspection Section
Seed Testing Section
Post Control Section
Variety Section

The government will provide adequate funds annually for this purpose as the Seed Certification Service is an integral part of the total seed programme.

The S.C.S. should be totally independent of seed production and marketing.

The N. S. B. will review its functions regularly and direct its operations in keeping with the National Seed Policy. It is important that the seed certification system should be a realistic one and should assist the parallel development of seed production and marketing activities.

The S. C. S. will register seed growers, inspect their seed crops in the field using set standards (approved by the Seeds Standards Committee of the N.S.B.) supervise post harvest operations (at processing, storage), draw samples, test them in the S. T. Laboratories and issue appropriate labels and seals for certification. It will also conduct post-control evaluation on genetic purity in Peradeniya (Paddy), Maha Illuppallama (Other Field Crops) and Sita Eliya (Exotic Vegetables).

The Variety Section will complete the cataloguing of the descriptive and field certification characteristics of the N. S. B. recommended varieties, report to the Variety Release Committee of the distinctness, uniformity and stability of new varieties.

Presently, it also undertakes seed storability tests on new varieties and also undertakes some basic seed research problems. The last item, viz., Seed Research especially storage problems should receive high priority of the Research Division of the Department and the S. C. S. which has certain basic facilities for seed research.

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