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ACTIVITIES OF THE AGRICULTURE DIVISION 1952-1962

by

GEORGE L. PETERSON

Chief, Agriculture Division

Activities of the Agriculture Division,Israel

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UNITED STATES AID MISSION TO ISRAEL

Tel Aviv - June, 1962

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PART I

INTRODUCTION

The purpose of this report is threefold. First, to provide a short summary of the activities of the Agriculture Division of the USAID Mission from the beginning until termination of activities in Israel on June 30, 1962. Secondly, to provide an account of the progress in Israel's agriculture since Israel became a sovereign state. And thirdly, to attempt an evaluation of the TC program in Agriculture.

The writer of this report came to Israel as Chief of the Agriculture Division on April 16, 1957. USOM activities had been suspended at the end of October 1956 and all but a few of the staff dispersed. The Mission reopened officially on May 5, 1957. Upon suspension of activities most of the Agricultural staff went to Rome. From there a considerable number were sent on temporary duty to Ethiopia, other to scattered assignments elsewhere and a number, whose assignments were practically completed, were returned to the United States.

The writer officially became Chief of the Agriculture and Water Resources Division in October 1956 but because of the cessation of activities of the Mission was detained in Washington. During the interim the future of the TC program in Israel was the subject of intensive review. It was decided to discontinue the Public Health Division, work in mass communication was to be discontinued, the Education Division was to be

phased out, agriculture was to be de-emphasized and greater emphasis was to be devoted to industry. As a result of these decisions the total staff of the Mission which on July 1, 1956 was about 75 people was in June 1957 only 36. In July 1958 when the Mission had had time to develop its program the staff had increased to 46. It increased slightly thereafter but it never approximated the numbers of the earlier period.

In reviewing the agriculture program of the Mission it was decided that the technical progress in Israel's agriculture had been so rapid since the Mission opened in 1952 that a large staff of long term technicians was no longer warranted. It was believed that in many instances Israel's needs for technical assistance in agriculture could be met through short term consultants. It was also decided that the Water Resources Division, which had been a separate entity prior to the suspension of Mission activities, should become a part of the Agriculture Division. Accordingly the staff of the Agriculture Division which in the period immediately before cessation of Mission activities was 24 was only 11 a year later. It was more than this later but only for short periods and a number of these were short term consultants.

During the period when the activities of the Mission were in a state of suspense the proper role of the University contract group was delineated more specifically than before. A contract between the State University of New York, abbreviated SUNY, (the Research Foundation of the State of New York) and ICA/W had been entered into in June 1954. The Research Foundation of the State University of New York provided staff not only in

Agriculture but also in Industry, Public Health and Education. The total SUNY staff in July 1956 was 23, 18 of which were in Agriculture. Thus only six of total agricultural staff exclusive of secretaries, were direct hire personnel.

The discussions in Washington led to a decision that the future role of SUNY in Israel should be limited to agriculture and furthermore that its activity was to be confined to the building up or strengthening of the institutions that are needed to serve a modern and progressive agriculture, namely, research, extension and education. Providing technicians and consultants in technical fields was to be the responsibility of ICA headquarters in Washington and the Agriculture Division of the Mission. As a result of these decisions the staff of the SUNY group has not been more than eight persons at any one time after the Mission resumed activities in May 1957 and two of these were short term consultants.

In the discussions in Washington it was emphasized that since all personnel of the SUNY staff were to work in Agriculture the SUNY Group and the Agriculture Division should operate as one single division. In other words the SUNY Group were to be responsible to the Chief of the Agriculture Division.

The writer was a party to the discussions and decisions in Washington regarding the future role of the Agriculture Division which he was later to carry out in the field.

PART II

ELEMENTS OF THE PROGRAM

Staff

Exclusive of secretarial personnel, a total of 80 technicians and consultant's have served in the Agriculture program since the Mission's beginning in 1952. Of this total 54 served for periods of more than six months and the balance for periods averaging 2½ months. Of the total technicians and consultants 48 were USAID personnel and 32 SUNY personnel. In addition to the American personnel who have served in the Agriculture program, there have been a varying number of local personnel.

The total of 1452 man months were expended by the American staff of the Division in carrying out the agriculture program. This is equivalent to 121 man years. The total man months is about equally divided between USOM-USAID and SUNY. The names of the persons who have served in the program and the titles of their positions are shown in Appendix I. Of the 22 employees whom this writer was responsible for retaining or recruiting to the staff 17 have been consultants who have served for 8 months or less.

The total number of months served by technicians and consultants may be somewhat greater than is indicated in the above figures and Appendix I. The data for Appendix I were taken from records showing arrival at the Mission and departure therefrom. Records which would have shown more

accurately the entire period that these technicians and consultants have been on the payroll had been shipped back to Washington at the time of this writing.

Participants

In the ten and a half years of the Mission's activities there have been 215 participantships granted for studies in the United States and third countries. All but five of these participantships have been individual participantships rather than teams. The total number of persons who have studied on participantships is therefore only slightly more than the total number of participantships; 225 in all.

The areas of study are shown in Appendix II.

The names of the individuals who have been granted participantships and their fields of study have been provided in other Mission documents, hence they are not listed in this report.

Commodities

A vast array of commodities, literally from bulldozers to test tubes, have been provided to support the technicians who came to Israel to carry out the program. More than ten thousand individual items have been supplied at a cost of $1,086,000. Roughly 75% of the commitments for commodity items were made before the writer assumed responsibility for the Agriculture Division in 1957. By far the largest amount of the expenditures for supporting equipment was in the field of research, extension and education, an area which has received the greatest emphasis during the writer's responsibility for the program of the Agriculture Division.

The expenditures for commodities and the total number of items supplied for each of the five consolidated projects which have embraced the entire Agriculture program since 1956/57 were as follows:

Project Number	Project Title	Amount	Items	%
271-12-085	Water Resources	84,331.10	553	7.7
271-12-127	Field and Horticultural Crops	170,648.05	710	15.7
271-11-159	Research, Extension & Education	457,060.49	5853	42.0
271-13-161	Animal Husbandry	216,318.11	1606	20.0
271-12-162	Range, Forestry & Fisheries	158,308.50	1738	14.5
		1,086,666.25	10460	99.9

Cost of the TC Program in Agriculture

The total cost of the technical assistance program in Agriculture since the beginning of Mission activities was $4,824,000. Roughly 70% of that cost was obligated, and most of it expended, before the end of FY 1956. An original obligation of more than $1 million for the operations of the SUNY contract was made in 1954; a substantial portion of this amount was not expended until after FY 1956, however. The expenditure for the program in Agriculture accounted for one-third of the total technical assistance program in Israel during the entire life of the Mission.

Cost of the expenditures for technicians and consultants constituted 47% of the entire cost of the agriculture program. The cost of the technicians in the SUNY program in Agriculture exceeded that for direct hire technicians and consultants. Supporting commodities absorbed 23% of the total cost, participants 11%, contracts 7.6% and other expenditures 11%.

The expenditures for the Agriculture program are shown in Appendix III.

Joint Fund Projects

An important vehicle for implementing the work and the advice of the technicians and consultants was the Joint Fund projects established under the Joint Fund. In the signing of the bilateral agreement it was agreed that a Joint Fund Office should be established and should be under the direction of an Israeli acceptable to the Director of the Mission. Theoretically the Government of Israel would deposit into the Joint Fund annually Israeli currency equivalent to the amount of the technical assistance program. The funds so deposited were available for carrying out special projects and for paying certain local currency costs. The Joint Fund Office assumed repository responsibility for all supporting commodities purchased under the TC program and maintained a report of the location and/or disposition of all such commodities. Whenever commodities and equipment were not needed on the projects for which they had been procured the Joint Fund Office would consult with the appropriate Division to make a determination as to where the equipment should be put to use. Such commodities which had served their purpose for demonstration use were frequently sold to the users if the users were individual enterprises such as kibbutzim or business enterprises. Much equipment not needed for the agriculture projects for which it was procured has been turned over to the Agricultural Research Station or to other agencies of the Government. The Joint Fund will wind up its activities as soon as practicable after termination of the Mission activities and most of the equipment will be given to various departments of the Government for their use.

The Joint Fund has been responsible for maintaining records of all expenditures for projects of all types and has maintained records of all activities under its responsibility.

After the arrival of a technician and after determination of his program he and his counterparts would determine the nature of the project or projects to be set up for implementing the activity for which he had been recuited. A Joint Fund project or projects would be drawn up, the budget needs for the project would be broken down into a number of elements such as salaries and wages, local and international travel, transportation of goods, communications contractual services, supplies and materials, equipment, etc. After discussion and agreement with the Chief of the Division on the one hand and the counterparts with their superiors on the other, the Chief of the Agriculture Division and the Director-General of the Ministry of Agriculture would discuss the project and if agreed would sign the project form. Thereafter they would be signed by the Controller of the Mission and the Director of the Joint Fund and finally by the Mission Director and the Prime Minister's Office. Changes in the intended use of the funds provided required agreement between the Chief of the Division and his counterpart in the Ministry of Agriculture.

A total of eighty such projects were entered into by the Mission and the Ministry of Agriculture. A total of more than IL.10,264,000 were expended on Joint Fund projects in Agriculture during the life of the Mission. These projects are listed in Appendix IV but all expenditures had not been submitted at the time this list was drawn up. This Appendix also shows when the projects started and when they were terminated. In a number

of instances it appears that there were two or three projects in the same field of activity. For administrative reasons it was found necessary to have almost identical projects in different places at the same time.

In theory it was intended that a project started under Joint Fund auspices would ultimately be taken over by the department in the Ministry concerned and financed directly through the Ministry's budget. In practice this has proven to be true in agriculture. All projects undertaken in agricultural research have been taken over by the Research Station. The Knesset has granted the Research Station a much larger budget for carrying on research as a result of the activities started under Joint Fund projects. The Joint Fund projects served to demonstrate the practicability of the work undertaken. In some instances Joint Fund projects were set up for the purpose of carrying on experiments to arrive at specific findings. In certain instances when the necessary data were obtained and could be used for other purposes the project could be discontinued. Some projects, particularly in Water Resources, were started very early in the life of the Mission and have continued until termination.

Investments in Agriculture Under USOM-USAID Activities

A total of IL.242,301,000 was made available under USOM-USAID activities to the Government of Israel for investment in Agriculture. This total does not include funds that may be made available from the calendar 1962 P.L.480 sales agreement. 39% of the amount made available came through the release of counterpart funds and was used in the first four years of Mission operations. 34 and 27% respectively came from Sections 402 and loans under Section 104(g) and were used in 1955 and afterwards.

Altogether IL.584,202,000 were made available to the Government of Israel for use in all sectors of its economy from the beginning of the operations of the Mission through FY 1961. 41% of the total amount were used for agricultural purposes. These data are shown in Part 1 of Appendix V.

The general categories in which counterpart funds were released for agricultural uses are shown in Part 2 of Appendix V. A breakdown in greater detail is not possible inasmuch as the records have been sent to Washington. More than one half of the counterpart funds used for Agriculture were used for water resources development.

Part 3 of Appendix V shows the breakdown of the loans and grants under Section 402 and Section 550 annually since 1955. More than 60% of the total amount were used for water resources development work. Approximately 70% of the total funds made available under Section 402 and Section 550 were in the form of grants.

Part 4 of Appendix V shows the breakdown of the loans extended to Agriculture under Section 104(g) of P.L.480 from 1955 through 1961. IL.65,445,000 were made available during that period. An additional amount will be made available from the 1962 P.L. 480 sales agreement. 70% of the total amount was used for water resources development.

The large amounts used for water resources development serve to point up the importance of water as Israel's agriculture becomes more and more intensive.

The Agriculture Officer was responsible for approving or disapproving all requests for loans and grants to be used for agricultural purposes. After approval by this officer they would be reviewed with the Program Officer, the Controller and the Director, prior to submission to Washington headquarters. A number of applications were disapproved. In those instances requests for loans of somewhat different character were submitted and usally approved in an equivalent amount. No loans for human housing in new settlements were approved during the writer's tenure.

The writer requested that GOI make a number of changes in the form of the application for loans for agricultural uses. These changes were later implemented. The changes requested provided for greater detail in the loan applications, specifying the precise use to which the funds were to be put and the number of units or other quantitative description of the use to which the funds were to be put. The purpose of the greater detail requested was to enable identification of the individual items in the loan request and to be able to ascertain that the number of units was in accordance with the application.

Programs of the Voluntary Agencies

The writer was responsible for approving or disapproving the requests of the voluntary agencies for Title III commodities to be distributed in Israel. Approval was preceded by discussion with the voluntary agencies of the details involved to ascertain that amounts and use were within the framework of the policies under which Title III commodities could be supplied.

There were three voluntary agencies operating in Israel at the time when the writer assumed responsibility for the Agriculture Division. Malben, the Israeli arm of the American Jewish Distribution Committee, was operating a program of considerable magnitude. CARE was carrying on an even larger program for the Ministry of Social Welfare and the Ministry of Education. The latter included the school lunch feeding program. Hadassah was carrying on a smaller program in its hospitals and for Youth Aliyah. As this is being written a Title II School Feeding Program is being considered in Washington to replace the School Feeding Program carried on by CARE.

The records showing the volume and value of the Title III program that has been carried on in Israel since the beginning of the Mission have been sent to Washington, hence an account of the magnitude of the program is not easily possible.

PART III

GROWTH IN ISRAEL'S AGRICULTURAL PRODUCTION

The increase in agricultural production since Israel became a sovereign state is nothing short of phenomenal. No comparable increase can be found anywhere in the world in modern times. From 1948/49 to 1960/61 the value of Israel's agricultural output, in constant prices, increased almost fivefold. The compound annual growth is in the realm of 14-15%. Increases of 5 or 6% are generally considered exceptions rather than common. A sustained growth such as that in Israel is not recorded elsewhere.

If a later period than 1948/49 is chosen as the base, the trend in the annual growth is not thereby appreciably altered. In other words, the growth is a sustained growth rather than one which was rapid because it started at a low level.

In less than one decade Israel moved from a situation of severe food shortages to one of abundance in almost all categories of the major food items. Title I P.L.480 commodities have played an important part in Israel's food situation. What part such supplies have made is not subject to precise measurement. Feed grains have served to increase the livestock numbers and thus the food derived therefrom. Bread grains have served to provide the nation with an adequate supply of foods derived therefrom.

The annual growth in total output is shown in Appendix VI. Appendix VII shows the increase in the major commodities in Israel's agriculture. Field crops increased by more than sixfold, fruits by almost sixfold, egg production by more than fivefold, vegetable and milk production by more than threefold and cattle numbers increased by almost sixfold.

Some of the recent developments in Israel's agriculture are noteworthy. Cotton production is a case in point. No cotton was produced in Israel before 1953. In 1960/61 14,000 tons of cotton was produced. Israel will in very short time be self sufficient in cotton production and may have some cotton for export, particularly in the form of specially designed fabrics. Israel will find it difficult to compete in the world market in exporting cotton. USOM-USAID did not provide any technical assistance in the production of cotton.

Beef cattle production is another illustration of a recent development that has had considerable impact on Israel's agriculture and its total economy. Israel's beef cattle herd numbered only 400 in 1950. In 1960 it numbered more than 58,000 head of cattle which were being fattened for slaughter. Meat of good quality can now be purchased at much less than the exhorbitant prices that prevailed only a few years ago.

A large part of the cattle kept for beef derive the major source of their nourishment from range lands. The use of range lands as a source of cattle feed is the result of USOM-USAID stimulation. Technicians in range management were provided early in the Mission operations. The guidance provided by those technicians and the knowledge gained by participants has

been energetically put to use by the Soil Conservation and the Cattle Departments of the Ministry of Agriculture.

Israel's poultry enterprise developed very rapidly after a poultry technician was provided and after feed grains became available under Title I of P.L.480. As a result Israel has had an adequate supply of both eggs and poultry meat in recent years and in addition a substantial export of both eggs and meat.

Concomitant with the growth in Israel's poultry enterprise has been the export of baby chicks and hatching eggs. In 1960/61 a total of 19 million baby chicks and/or hatching eggs were exported.

Israel's agriculture has been mechanized and motor powered very rapidly. The number of tractors in 1960 was six times the number in 1959 and more than 50% greater in 1960 than in 1956. Grain combines almost doubled in 1949 to 1960. Hay and straw balers almost tripled in the same period.

These recent developments in Israel's agriculture are shown in Table VIII.

Capital Investment in Israel's Agriculture

The annual investment both in agriculture and in the balance of Israel's economy are very large both in absolute terms and in relation to the total investment in the whole economy.

Appendix IX shows the gross capital investment annually in the important divisions of Israel's economy. While the annual investment in Agriculture and Water Resources has with minor exception been rising from

year to year and most significantly during the last four years, the proportion of the total investment going into agriculture has been declining, particularly in recent years. The relative decline in agriculture's part of the total investment in the economy is in accordance with plans. Other aspects of Israel's economy should continue to grow in future relative to agriculture. Agriculture's potential is strictly limited by the limited area of arable land.

The large annual investment in agriculture has played a very important part in the annual increase in agricultural production. Isolation of the part due to investment and that due to technological progress is not possible.

The foregoing serves to illustrate the results of the nation's very determined policy to develop its agriculture. With the exception of water resources the objectives in that direction have largely been achieved. Agriculture should henceforth require considerably small part of the nation's development budget - unless settlement of the Negev should be started aggressively.

Numbers Gainfully Employed

The number of people employed in agriculture, in industry, mining and power and in all other branches of Israel's economy are shown in Appendix X. It appears from Appendix X that the number of persons employed in agriculture have in recent years been approximately double the number in 1950 but it is also apparent from this table that the absolute number employed in agriculture have remained almost constant in recent years. During the same period the numbers employed in other sectors of the economy have increased very significantly.

Gross National Product

The contribution of Agriculture, Forestry and Fishing to Israel's gross national product doubled from 1955 to 1960. The relative contribution of agriculture during this period remained constant, however. The total gross national product and the contribution of Agriculture, Mining and manufacturing are shown in Appendix XI. Share of Production by Kibbutzim, Moshavim and Others, Appendix XII, shows the share of the production by kibbutzim, moshavim and other forms of economic-political organization in certain fields of agriculture. Kibbutzim, which have large areas and are not as easily subject to intensification as the moshavim, in 1959-60 had 54% of the area devoted to field crops. On the other hand, the moshavim had a larger proportion of the total irrigated area used in field crops. Moshavim have a larger proportion of the areas devoted to vegetables and potatoes. Moshavim also produce by far the greater proportion of eggs and of milk whereas the kibbutzim produce the largest proportion of hatching eggs and broilers.

Contrary to the popular belief that only the kibbutzim and the moshavim are important in Israel's agriculture, Appendix XII shows that a very substantial portion of Israel's total output is produced under other forms of economic-political organization than the kibbutzim and the moshavim.

PROBLEMS OF ISRAEL'S AGRICULTURE

Despite the rapid technological progress in agriculture and despite the phenomenal increase in production both agriculture and the Government is beset with a number of problems of varying degrees of difficulty. Most of the problems are of an economic-political character. To discuss these at any length does not come within the purview of this report. A mere listing of the more important problems is all that will be attempted. Nor are they listed in the order of importance or difficulty.

Abundance vs. Scarcity

At the beginning of the decade Israel's principal problem was one of producing enough to feed its people. In a relatively short time the problem shifted from scarcity to abundance. Israel can produce most economically an abundance of the agricultural commodities for which the domestic demand is distinctly limited and for which the export market is both limited and very competitive. On the other hand she cannot produce nearly enough of those commodities which are vital, if not most vital, to her economy. Fruits and vegetables lend themselves to intensive agriculture and can be produced most economically under irrigation. Export markets, with the exception of citrus, are difficult to develop. Furthermore, their perishability requires special handling and timely appearance on the market, both of which present additional problems. On the other hand, bread grains and feed grains which account for the greatest part of the agricultural imports cannot be produced in sufficient quantities in the areas suitable for their cultivation. Nor can they be produced economically under irrigation. Israel's limited arable land

area is sufficient for the fruits and vegetables needed but not for bread and feed grains and forage. Thus, there is a constant problem of using the limited land resources for the production of commodities that can be produced most advantageously or at the least comparative disadvantages. Providing the Negev with water for irrigation will not in the writer's opinion solve the problem - that is producing more feed and bread grains. Water for the Negev may be necessary for political reasons but cannot be justified for economic reasons.

Economic Problems

In the transition from scarcity to abundance, a number of economic problems have emerged. Israel's production costs, not only in agriculture, but in other sectors of the economy are high. With falling prices due to increased supplies farmers have found it difficult to dispose of their output to advantage. Marketing problems have become important. Efforts to reduce internal production costs are some of the most urgent problems in Israel's agriculture. A factor making such reduction difficult is the small units in the greater part of Israel's agriculture. While the kibbutzim are large in area and can undoubtedly produce more economically due to economy of scale, the individual units on the moshavim are very small, hence tend to be high cost.

Another factor in the production costs is the need for irrigation for nearly all summer crops. The water resources development, which is perhaps 65% completed, has been costly. In addition to the cost of the major underground network of water pipelines is the cost of the smaller distributing

systems. To the extent that agriculture bears the major part of the cost of the water resources development the cost of production is thereby increased.

Uneconomic Development

It has been necessary to provide employment for the large influx from the diaspora, an influx which is continuing. Much of the employment has been in agriculture since industry to absorb this influx did not exist. In recent years it has been necessary to establish agricultural settlements in areas not well suited for agriculture and where there can hardly be an economic return on the investment. However from a national standpoint it may be not only the most economic way to take care of the immigrants who have come to make their homes here but also the best way of assimilating them into the community. This settling of immigrants in areas of poor land, where clearing costs are very high and where the areas are limited, will undoubtedly continue for some time if immigration continues. Poultry production and fruit production can be produced most advantageously in these settlements. This production has created very difficult problems for the older settlements.

Subsidies

Subsidies of various types and for various purposes were instituted early in the life of the State. In most instances they were designed to solve production problems or to augment the earnings of low income farmers. For political or other reasons it has been difficult to discontinue the subsidies. They have become burdensome for the national treasury.

In the rapid development of the State and as a result of the need to provide without delay economic and social opportunity for the large inflow of immigrants it is only natural that problems such as the above would emerge. They are not susceptible to quick and ready solutions. Measures are constantly being taken by the Government to cope with these problems.

It is recognized that the above statements telescope broad economic and social problems into a few paragraphs. Each of the problems listed is made up of a number of individual problems which cannot be dealt with at greater length in this report.

PART IV

EVALUATION

To attempt to discuss any of the activities of the many technicians who have served in Israel during the ten years of the technical assistance program is beyond the scope of this brief report and would seriously dilute the purposes for which it is intended. Since the writer came to Israel all technicians and consultants have prepared reports summarizing their activities. The report of one of the short term consultants was intended for very limited use, was not reproduced and is therefore not included in the list of published reports. These are listed by writer and subject matter in Appendix XIII. Resort to the individual reports is recommended for any reader who may wish to acquaint himself in greater detail with any of the various activities carried out by technicians and consultants.

The reports were prepared primarily for the Israel Government and the specialists in the areas of activity for which the technicians and consultants were recruited. These reports serve as reference material and provide guidance to the various technical departments in branches and agencies of the Israel Government. Their value and use has frequently been called to the writer's attention. In addition they have frequently served as bench marks for further activities in various fields.

Normally 150 reports are prepared. Fifty are sent to AID/W, fifty to the Prime Minister's Office for distribution internally and part of the

balance used for special distribution. Many have had almost world wide distribution. Requests for copies of reports have been received - and are continuing to be received - from many institutions in Israel who were not included on the Prime Minister's Office distribution list. Many requests have been received from other Missions.

An attempt to evaluate the total activities of the technicians and consultants as well as other aspects of the technical assistance program can however be made. This evaluation is based primarily on the activities carried on since the writer assumed responsibility for the Agriculture Division although there is no reason to believe that the outcome of the activities of the staff in the Division prior to his arrival in Israel differ in any degree.

The remarkable increase in the agricultural production since Israel became sovereign is an indication of the high degree of technological advancement and is an attest that the recommendations of the various technicians have been adopted in large measure.

Milk production per cow is the highest in the world. Eggs laid per hen is very high. Yields of field crops per unit area have reached a high level and would be considerably higher but for the lack of rainfall. Yields of vegetables and fruits are very high. Citrus culture is one of the most advanced in the world. Cotton production, recently introduced into Israel, is giving high yields of excellent quality. The problems attendant to high yields and new crops such as diseases, pests, etc. have been met successfully. This compound annual growth in total production is not matched anywheres in

the world. Increases in the area under cultivation have played a minor role in the increasing production since the arable area is distinctly limited. Those increases have contributed primarily to poultry production and deciduous fruit production.

This large annual increase in production would have been impossible without the assistance of outside technicians. Technicians have been provided not only by the United States technical assistance program but also by FAO, by UN and by other agencies or foundations. Visiting experts in various fields of specialization have found themselves subjected to intensive interrogation by the personnel of the departments with whom they have worked. Israelis sent abroad to study agriculture on whatever auspices have played an important role in the outstanding achievements in agriculture.

In its request for technicians and consultants the GOI has constantly insisted that men of outstanding achievement be provided. In many cases the persons wanted have been specified by name. The level of scientific and technical competence on the part of the Israelis engaged in the fields concerned and the specific identity of the problems for which their assistance was sought necessitated the recruitment of highly qualified personnel. Less qualified technicians could have contributed very little to the already advanced technological level. On the whole the persons recruited have found their time demanded in full by their counterparts. Short term consultants have often found it necessary to work on Sundays and holidays in order to carry out the demands placed on them by those with whom they worked during their short assignments. In most areas of

technical agriculture, considerable advancement has been made not only during the advisor's tenure but implementation of his recommendations have been more pronounced after his departure.

As a result of the rapid technological advancement in Israel's agriculture it was decided while the writer was in Washington awaiting departure for Israel and while the Mission activities were suspended that technicians future need not be provided on the same scale as had been true in the past. It was believed that in most areas of need problems could be solved by providing short term consultants. This has largely proven to be true. After arrival at post it became apparent that long term technicians were needed only in a few special areas, particularly those which were new in Israel's agriculture or had not yet been introduced to any significant degree, e.g. range management and dairy sanitation.

A measure of the high level of Israel's technical and scientific competence in agriculture is found in its own technical assistance program in Africa, Asia and Latin America. Technicians in large numbers have been sent to many of the emerging and developing countries. At the end of 1961 400 technicians had been sent to 42 different countries. An additional number is being provided in 1962. Also at the end of 1961 more than 1400 persons from other countries had come to Israel for training. Additional numbers are being trained in 1962. By far the greater number of both technicians and trainees are in agriculture. The number that would come for such training is limited primarily by Israel's facilities and resources for handling them.

It also became apparent to the writer that Israel did not have the institutional set ups to serve adequately the needs of an advanced and progressive agriculture. Research was being carried out in various departments of the Ministry of Agriculture, in the Faculty of Agriculture (a part of the Hebrew University), besides the Agricultural Research Station at Beit Dagon. Extension work was being carried out both by the Ministry of Agriculture and the Jewish Agency. Extension work in home economics was only at its beginning. The older established settlements, both moshavim and kibbutzim, needed different types of extension services than was needed by the newer and the new settlements. Agricultural education both in the secondary schools and on the higher level needed strengthening. In consultation with Government officials, both Ministry and Jewish Agency, it was agreed that the Agriculture Division of the Mission should concentrate its activities on the strengthening of the institutional organizations for serving agriculture. The contract with the State University of New York provided the vehicle for meeting these requirements.

In 1956 an agreement was reached between the AID Mission on the one hand, the Ministry of Agriculture and the Prime Minister's Office on the other, whereby an agricultural college complex housing under one administrative roof research, extension and education, would be established at Beit Dagon. Thus, the first step in building up stronger institutions for serving Israel's agriculture was taken. As a result of the advice given by a Research Coordination Advisor provided under the SUNY contract, more and more of the research work carried on by departments of the Ministry of

Agriculture was transferred to the Research Station at Beit Dagon. SUNY's extension specialists in agriculture and in home economics continued to press for a statewide organization to carry on extension work. The Agricultural Education Advisor continued with the assistance of the Agricultural Education Division in the Ministry of Agriculture to press for improvement in the training of secondary agricultural teachers. In the beginning of 1960 the Ministry of Agriculture and the Hebrew University signed an agreement whereby their respective facilities for research and education would be merged into one organization known as the National and University Institute of Agriculture. At about the same time the Ministry of Agriculture and the Jewish Agency arrived at an agreement whereby their respective resources in agricultural extension would be merged into one.

The unified extension system has made a great deal of progress both in its internal organization and in its program of work. The country has been divided into twelve extension districts headed by one director in each district. Each district employs a staff of workers in the various branches of agriculture common to the area. The state organization has been headed by competent and aggressive leaders. Participantships both in agricultural extension and in home economics have been emphasized in recent years. The number of persons employed statewide has not only increased but personnel has been upgraded. The new extension system is well thought of by the farmers of Israel. It serves the need of Israel's farmers much more adequately than before. The unified extension system has not yet however found it practicable to merge with the National and University Institute of Agriculture. It continues as a department in the Ministry of Agriculture.

In January 1961 a new SUNY Team Leader arrived in Israel. He was Dr. William R. Kunsela, President of one of SUNY's institutions. Through his untiring efforts and aggressiveness a new dimension has been given to NULA; a dimension considerably larger than that which was envisioned before and under which NULA could ultimately serve Israel much more adequately than would otherwise be possible. This new dimension involves a capital expansion program in the next few years in the magnitude of IL.5,347,000. In an exchange of letters between Ambassador Walworth Barbour and Finance Minister Mr. Levi Eshkol, the Ministry of Finance has committed itself to provide the funds for the capital investment program. However, as a result of the new economic policy promulgated after devaluation in February 1962 the main expansion program has been deferred one year. Sufficient funds have, however, been provided to carry out all the planning aspects of the expansion program so that capital construction may begin in the early part of FY 1962.

PROPOSED CAPITAL CONSTRUCTION PROGRAM FOR NATIONAL AND UNIVERSITY INSTITUTE OF AGRICULTURE

STAGE I (7/61 - 3/62)

Project	Estimated Cost	Start	Completion
Rehabilitate temporary facility for School of Home Economics	100,000	7/61	3/62
Planning Stage II	153,000	7/61	3/62
	IL.253,000		

STAGE II (4/62 - 9/63)

School of Home Economics	1,000,000	4/62	9/63
Basic Science Building	1,000,000	4/62	9/63
Dormitory 100 beds (F)	275,000	4/62	9/63
Dormitory 100 beds (M)	275,000	4/62	9/63
Planning Stage III	93,000	4/62	3/63
	IL.2,643,000		

STAGE III (4/63 - 9/64)

Admin. Extension Bldg.	1,000,000	4/63	4/64
Dormitory 100 beds (F)	275,000	4/63	9/64
Dormitory 100 beds (M)	275,000	4/63	3/64
Planning Stage IV	51,000		
	IL.1,601,000		

STAGE IV (4/64 - 9/65)

Dining Center	300,000	4/64	4/65
Dormitory 100 beds (F)	275,000	4/64	9/65
Dormitory 100 beds (M)	275,000	4/64	3/65
	IL.850,000		

SUMMARY: COST

STAGE I	-	253,000	7/61
STAGE II	-	2,643,000	4/62
STAGE III	-	1,601,000	4/63
STAGE IV	-	850,000	4/64
TOTAL:		IL.5,347,000	

The difficulties standing in the way of greater progress are internal rather than external. There have been factions both in the Research Station and in the Faculty of Agriculture, but primarily in the latter, who have been opposed to the merger and who have obstructed its functioning as a merged institution. In addition there have been fifth columns. The processes used in overcoming the obstacles or hinderances to effect a better organization have been very democratic. It is believed that these democratic processes will stand the merger in good stead in the future whereas overcoming the difficulties by government fiat would have brought about injured feelings that could not have been overcome in a long time.

The forces opposed to the merger in the Faculty of Agriculture are strong enough to have last week elected a Dean of the Faculty who is opposed to the merger. Undoubtedly the factions opposed will attempt to dissolve the merger but it is not feared that they will be successful since both the Ministry of Agriculture and the Hebrew University are in favor of the merger. As long as the merger exists progress can and will be made. If it were dissolved an attempt at a unification of the two institutions involved would hardly be made within ten or twenty years.

The fact that NUIA has not become an integrated smooth functioning organization does not in any way imply that efforts of the SUNY staff have been in vain. On the contrary, a great deal of progress has been made in the areas which they served while in Israel. Most all technicians have worked with capable counterparts and have found fertile areas in which to expend their efforts. Only in the cases of university level education in home economics and in agricultural education has there been a lack or

absence of appropriate counterparts or department heads with which to work. (There could be no heads in departments that do not exist in the university). Nevertheless the home economics education advisor has devoted most of her time to the establishment of a home economics department in NUIA on the university level and facilities for this department are provided for in the capital expansion program. The agricultural education advisor in addition to his work with secondary agricultural schools has worked diligently with appropriate members of the Faculty of Agriculture to assure establishment of courses for training of secondary agricultural education teachers when the expansion program goes forward.

The State University of New York has indicated to proper authorities its willingness and ability to effect a continuing relationship with NUIA and/or other institutions of higher learning in Israel. While USAID and the Agency for International Development will not provide any funds for the cost of such a relationship and therefore no responsibility for the programs that may be engaged in, the writer feels that he and AID/W has a right to make certain suggestions. This right is based on the fact that USAID and AID/W has provided funds for the operation of the SUNY contract with an unwritten understanding that non U.S. financed relationship would very likely be entered into upon the termination of U.S. financing. There is likelihood that U.S. owned local currency will be used for local costs of such a relationship.

If a continuing relationship is entered into the first and foremost need is for a college advisor, a replacement for the SUNY Team Leader. Since the capital expansion program has been agreed his primary responsibility will be one of counselling with the members of the Faculty, the

members of the Research Station, officers in the Hebrew University and in the Ministry of Agriculture for purposes of overcoming the difficulties which stand in the way of bringing about a smooth functioning organization for which such an effort has been expended over the past several years. His second responsibility would be to provide a home economics education advisor who can serve in the establishment of a School of Home Economics in NULA, another aspect in which a great deal of effort has been expended in the past several years.

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At the beginning of this report the writer mentioned that during the discussions in Washington prior to assuming the responsibility of the position it had been emphasized that the SUNY team and the Agriculture Division should function as one unit. The writer now wishes to pay his compliments to the SUNY staff and particularly to the two SUNY persons who have served as SUNY Team Leaders during his tenure in Israel, namely, Dr. Isaac B. Johnson and Dr. William R. Kunsela, for the manner in which they have cooperated in this respect. It has been a pleasure to work with the caliber of the people provided by SUNY and who have been so willing to work as one Agriculture Division. He also wishes to pay his compliments to the direct hire technicians and consultants who have served with him during his tenure in Israel. He takes a great deal of pride in the esprit de corps that has been maintained in the Division and in the very pleasant professional and personal relationships that have been maintained between him and both SUNY and direct hire staff.

STAFF: TECHNICIANS, CONSULTANTS, SUPERVISORY AND SECRETARIAL

Name	Position Title	Months served in FY 52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62	Total
USOM-USAID												
Berger, J.J.	Water Resources Adv.	1										1
Besse, Ralph S.	Exp. Station Adv.	3	9									12
Creel, Cecil W.	Agriculturist-Education	5										5
Dahlgren, E.H. (served 2 months in 1951-52)	Fisheries Specialist											2
Flannely, Walter	Drilling Expert-Water	7	12	1								20
Hull, Alvin	Forestry Advisor	1										1
Karrer, Wilfred	Chief, Water Resources	6	6									12
Letts, Thomas S.	Agric. Education Adv.	2	12	1								15
Milam, Ford	Agronomist	3	12	10								25
Smith, Winslow W.	Bacteriologist	2	12	1								15
							Total months					108

APPENDIX I

Name	Position Title	Months served in FY 52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62	Total
Blank, U.O.	Agric. Extension Adv.		6	4								10
Bolde, Abraham	Sewage Treatment		4	8								12
Dennis, Joseph	Sewage Engineer		8	12	4							24
Freedman, Jacob	Field Geologist		10	2								12
Gamer, R.L.	Engineering Geologist Irrig.		4	12	10	2						28
Hartman, Wm.	Agricultural Advisor		11									11
Killough, John R.	Range Management		11	1								12
Leiberman, Morton	Sewage Treatment		2									2
Nelson, Ben	Livestock Advisor		8	12	5							25
Power, A.J.	Irrigation Engineer		8	12	4							24
Schiele, Palmer	Agricultural Eng. Adv.		4	12	8							24
Thomas, Tom B.	Eng. Adv. Water Res.		9	12	12	12	9					54
Wright, John	Sewage Treatment		3	9								12
							Total months					250

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Name	Position Title	Months served in FY										
		52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62	Total
McMenomey, Barth J.	Livestock Range Spec.				12	12						24
Short, Laurence R.	Range Management Adv.				9	12	12	12	11	1	2	59
Workman, Lewis J.	Water Resources Adv.				11	4						15
Blaney, Harry F.	Irrigation Advisor							3				3
Carpenter, R.D.	Forestry Consultant							2	6			8
Brown, Ewing E.	Feed Microscopy Cons.								2			2
Edge, Lester N.	Sawmill Cons. (Forestry)								2	1		3
Johnson, Leslie	Livestock Advisor								2			2
Sainsbury, George F.	Fruit Handling Consultant, Refrigeration								3			3
Schuman, Bernard K.	Livestock Advisor (Dairy)							5	12	12	12	41
Swift, Lloyd W.	Nature Conservation Cons.								3			3
Terrell, Pete W.	Water Resources Advisor									1		1
Harlan, Wilbur	Plant Breeding - Cereals							1				1
Lunin, J.	Soil Scientist							1				1
Johnson, Embree	Visual Aids									1		1
								Total months				167

Name	Position Title	Months served in FY 52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62	Total
Gieser, Arthur	Aerial Spray Cons.										2	2
Lynch, Michael	Visual Aids Advisor										6	6
McGauhey, P.	Ground Water Recharge Cons.										1	1
Schneider, Robert	Limestone Aquifer Cons.										3	3
Smock, Robert M.	Apple Storage Cons.										1	1
Tierkel, E.	Rabies Control Cons.										1	1
								Total months				14
SUPERVISORY AND SECRETARIAL												
Molohon, Albin D.	Chief of Agriculture Div.		12	12	12							36
Peterson, George L.	Chief of Agriculture Div.					3	12	12	12	12	12	63
Cason, Raymond G.	Deputy Chief, Agriculture Div.							10	12			22
Maddy, Paul E.	Agriculture Program Asst.							4	12	12		28
Mittiga, Angela	Secretary		1	12	12							25
Curry, Harriet B.	Secretary				1	10						11
Savelkoul, Vyonny	Secretary						6					6
Brudy, Wilma	Secretary						7	12	6			25
								Total months				216
								Grand total months				755

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Name	Position Title	Months served in FY 52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62	Total
	SUNY											
Birdsall, Webster J.	Marketing Specialist			6	12	12						30
Branyon, Donald L.	Agronomist			7	11							18
Bridges, James L.	Agron. Farm Management			7	12	4						23
Haag, Roy J.	Nutrition Chemist			1	12	4						17
Lieby, P.W.	Entomologist			9								9
Olafson, Peter	Vet. Diagnostician			6	6							12
Orvis, Paul	SUNY Team Chief			4	12	4						20
Perlmutter, Alfred	Sea Fisheries Advisor			6	12	4						22
Price, William A.	Agricultural Engineer Irrig.			6	12	4						22
Stopper, William W.	Poultry Management			9	12	1						22
Thompson, Charles A.	Agricultural Extension Adv.			1	12	12	12	2				39
Wallace, James M.	Plant Virologist			1	1							2
Watts, Nellie S.	Home Econ. Advisor			1	12	12	12	2				39
Weaver, Jack W.	Agricultural Education Adv.			7	12	3	7	10				39
						Total months						314

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Name	Position Title	Months served in FY										
		52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62	Total
Childs, James F.	Citrus Consultant				1							1
Foote, Norman H.	Farm Machinery Adv.				9	12						21
Levine, Moses N.	Cereal Rust Spec.				12	4						16
Manley, Frank H.	Vet. Bacteriologist				12	12						24
Marble, Dean R.	Poultry Geneticist				4							4
Wilkinson, Robert W.	Plant Pathologist				12	4						16
Ginsburg, Joseph H.	Plant Protection Adv.					11	12	1				24
Johnson, I.B.	Experiment Station Adv. SUNY Team Leader					11	12	12	11			46
Schuman, Bernard K.	Dairy Sanitation Spec.					6						6
Hayes, D. Leo	Agric. Extension Adv.							4	12	12	12	40
Huston, Velma	Home Economics Ext. Adv.							6	12	12	12	42
Buntin, L. Ann	Home Economics Educ. Adv.								12	12	12	36
Kunsela, William R.	SUNY Team Leader									5	12	17
Smith, Robert E.	Farm Management Adv.									9	3	12
							Total months					305

Name	Position Title	Months served in FY 52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62	Total
Alexander, Martin	Soil Microbiologist										12	12
Levine, Phillip P.	Poultry Virologist										6	6
Shepardson, Stanley	Farm Machinery Adv.										4	4
								Total months				22
SUNY Supervisory and Secretarial												
Wiley, Marshall P.	Assistant Project Chief			9	12	12	4					37
Weiss, Barbara	Secretary					8	11					19
								Total months				56
								Grand total months				697

Total months USOM-USAID and SUNY 1452

Equivalent to 121 man years

PARTICIPANTSHIPS IN AGRICULTURE

Area of Study	51-52	52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61	61-62	Total
Field and Horticultural Crops and Plant Protection	3	3	5	3	4	3	6	3	5	6	1	42
Agricultural Economics, Credit, Marketing, Cooperatives, Farm Management	2		4	2	1	1	2	1	2	1	5	21
Research, Extension and Education		6	5	3	3	3	5	7	4	7	9	52
Livestock			3	4	3	2	1	1	3	3		20
Conservation and Range Management			3		2	1	1	1	1	1		10
Forestry				2						1		3
Fisheries		1		1				1			1	4
Water Resources & Irrigation	5	5	8	12	7	7	4	3	4	4	4	63
Number of participantships	10	15	28	27	20	17	19	17	19	23	20	215
Number of participants	10	15	28	27	20	17	19	17	22	27	23	225
Of which SUNY financed										1		1

COST OF THE TC PROGRAM IN AGRICULTURE

In thousands of U.S. dollars

Year	Total	Partici-pants	Techni-cians	Contracts	Commodi-ties	Other	SUNY Obligations
As of 6/30/57	3261	248	563	165	800	546	939
FY 58	682	42	63	138	209	-	230
59	219	56	104	-	59	-	-
60	248	69	109	1	4	-	65
61	297	93	61	64	15	-	64
62	117	44	71	-	-	2	-
Grand total	4824	552	971	368	1087	548	1,298
Percent of total		11.4	20.1	7.6	22.5	11.4	26.9

Other SUNY obligations $293

Total SUNY obligations $1,571

Total TC Program 1952-1962 $14,686,000 (approx.)

Percent Agriculture is of total 32.8%

JOINT FUND PROJECTS IN AGRICULTURE & WATER RESOURCES

Project No.	Field of Activity	Started	Terminated	Expenditures IL.
CONSOLIDATED PROJECT NO. 71-11-159, RESEARCH, EXTENSION & EDUCATION				
71-11-039	Research Coordination - Publications & Administration	1955	1962	241,988
71-11-039/1	Research Coordination - Quick Soil Test	1958	1961	59,450
71-11-039/2	Research Coordination - Sugar Beets	1958	1961	73,899
71-11-039/3	Research Coordination - Citrus	1958	1957	9,790
71-11-044	Agriculture Extension Work	1955	1956	50
71-11-053	Food Technical Research	1954	1962	95,605
71-11-058	Efficiency of Irrigation Methods	1954	1962	263,822
71-16-060/A	Community Centers - Joint Extension	1954	1962	739,691
71-16-060/1	Training & Testing Farm (IBIM)	1956	1960	13,796
71-16-060/2	Dairy Training Center	1956	1962	223.388
71-15-061	Home Making Department in Agricultural Schools	1955	1962	176,493
71-15-060/3	Home Economics Extension	1958	1962	212,396
71-11-066/A	Agricultural Education	1954	1962	594,794
71-11-066/1	Agricultural Education - Technical Institute (Acre)	1957	1961	253,130
71-62-067	Teacher Training Practical & Vocational Agriculture	1954	1962	139,427
71-62-067/1	Teacher Training	1958	1962	143,876

Project No.	Field of Activity	Started	Terminated	Expenditures IL.
71-13-06[illegible]	Cereal Rust Races	1954	1960	50,635
71-13-070	Virus Diseases of Plants	1954	1961	83,647
71-11-080	Agricultural Economics - Economic Research	1955	1959	[illegible],566
71-11-080/1	Agricultural Economics - Marketing Research	1957	1959	33,647
71-11-A	Toxicology	1957	1959	[illegible]5,531
71-16-060/3A	Home Economics Extension - Training School	1960	1962	61,695
71-11-C	Farm Mechanization	1959	1961	35,000
71-11-D	Plant Breeding	1959	1962	75,000
71-11-E	Vegetables for Export	1959	1961	20,000
71-11-F	Soil Microbiology	1961	1962	20,000
71-11-066/B	Agriculture Education - Youth Clubs	1960	1960	39,380
71-11-066/C	Agriculture Education - Youth Centers	1960	1960	114,936
71-11-066/D	Agriculture Education - Regional Schools	1960	1960	44,837
71-11-066/E	Agriculture Education - Publications	1960	1960	9,904
71-16-060/B	Community Center - Visual Aids	1960	1960	88,494
71-16-060/C	Community Center - Publications & Courses	1960	1960	78,466
71-16-060/D	Community Center - Farm Management	1961	1962	19,957

Project No.	Field of Activity	Started	Terminated	Expenditures IL.
CONSOLIDATED PROJECT NO. 71-12-162, RANGE AND FORESTRY				
71-12-B	Range Research	1957	1962	62,000
71-12-046	Management & Development of Rangelands - Grass Seed Farm	1957	1959	4,954
71-12-046/2	Management & Development of Rangelands - Range Administration Studies	1958	1962	88,432
71-18-062	Sea Fisheries	1955	1957	99,466
71-13-065	Improvement of Rangelands and Livestock	1956	1961	689,959
71-12-074	Run Off Water	1955	1956	189,940
71-12-B/2	Range Research (Karei Deshe)	1960	1961	22,500
CONSOLIDATED PROJECT NO. 71-13-127, FIELD AND HORTICULTURAL CROPS				
71-11-055	Training & Testing Farm	1954	1959	69,636
71-13-056	Cotton Ginning	1954	1955	9,966
71-13-057	Cotton Production	1954	1955	8,000
71-13-063	Field Crops - Production	1955	1961	130,795
71-13-063/1	Field Crops - Mechanisation	1958	1961	35,000
71-13-064	Carobs & Olives - Development in the Negev	1954	1958	297,161
71-13-064/1	Carobs & Olives - Black Scale		1958	3,985
71-13-064/2	Carobs & Olives - Olive Fly		1959	4,185
71-13-064/3	Carobs & Olives - Citrus Thinning	1956	1957	3,680
71-13-064/4	Carobs & Olives - Horticulture	1954	1962	50,263
71-13-064/5	Carobs & Olives - Plant Protection, Formulation & Application of Pesticides	1958	1960	19,000
71-13-064/6	Precooling of Vegetables & Fruits	1960	1961	1,995

Project No.	Field of Activity	Started	Terminated	Expenditures IL.
CONSOLIDATED PROJECT NO. 71-13-161, ANIMAL HUSBANDRY				
71-13-045	Control of Animal Diseases	1955	1958	90,124
71-13-045/1	Control of Animal Diseases - Leptospirosis	1957	1958	7,600
71-13-045/2	Control of Animal Diseases - Mastitis	1957	1958	4,019
71-13-049	Improvement of Poultry Breeding	1955	1958	69,623
71-13-073	Improvement of Livestock - Negev	1955	1959	171,579
71-13-073/1	Improvement of Livestock - Sheep and Goats	1957	1961	63,873
71-13-073/2	Improvement of Livestock - Cattle & Working Animals	1957	1961	141,202
71-13-073/3	Improvement of Livestock - Leptospirosis	1958	1960	19,377
71-13-073/4	Improvement of Livestock - Biochemical Composition of Nutritional Value of Forage Crops	1957	1958	90,722
71-13-073/5	Improvement of Livestock - Clean Milk Production	1957	1962	
71-13-073/6	Improvement of Livestock - Dairy Bull Station	1958	1961	[illegible],000

Project No.	Field of Activity	Started	Terminated	Expenditures IL.
CONSOLIDATED PROJECT NO. 71-12-266, WATER RESOURCES				
71-12-050	Artificial Rain Precipitation	1955	1955	44,814
71-12-085	Control of Underground Water	1953	1962	2,017,074
71-12-085/1	Water Resources Planning	1953	1962	561,118
71-12-085/2	Field Construction & Quality Control	1953	1960	80,580
SUNY PROJECT				
71-11-183	SUNY Contract Local Costs	1954	1962	467,000

INVESTMENTS IN AGRICULTURE UNDER USOM-USAID OPERATIONS 1952-1962

In thousands of IL

FY	Counterpart	Sec. 402 and 550	Loans 104 (g) PL 480	Grants 104 (e) PL 480	Total
52	12,382				12,382
53	28,564				28,564
54	32,560				32,560
55	18,981	11,111	10,250		40,342
56		12,710	16,705		29,415
57		14,537			14,537
58		13,500	15,446		28,946
59		12,640	6,870		19,510
60		13,500	11,594		25,094
61		4,571	4,580	1,800	10,951
Total	92,487	82,569	65,445	1,800	242,301
Percent of total	38.2	34.1	27	.6	

Total Counterpart funds released	IL.212,546
Percentage released to Agriculture	43.5%
Total loans and grants under Sec. 402 and 550	IL.137,391,616
Percentage used in Agriculture	60%
Total loans extended under Sec. 104(g) of PL 480	IL.208,903,622
Percentage used in Agriculture	31.8%
Total 104(e) grants made	IL.25,360,000
Percentage used in Agriculture	7%
Total of all funds released	IL.584,202,000
Percentage used in Agriculture	41.4%

BREAKDOWN OF COUNTERPART FUNDS
USED FOR AGRICULTURE

Water resources development		IL.48,923,575
Fisheries		220,000
Afforestation		5,582,343
Institutions and Schools		1,100,000
General agricultural development		36,660,850
	Total	92,486,768

BREAKDOWN OF LOANS AND GRANTS
USED FOR AGRICULTURE UNDER SEC. 402 AND SEC. 550

FY 55	62-965	Regional Irrigation (Mekorot)	IL.5,684,700	Loan
	62-967	" " "	541,000	Loan
	62-968	" " "	634,800	Loan
	63-951	Citrus Plantations	1,500,000	Loan
	63-954	Expansion of Irrigated Areas	2,000,000	Loan
	63-955	Land Preparation	750,000	Loan
			11,110,500	
FY 56	12-228	Agricultural Land Preparation	1,150,000	Loan
	12-218	Regional Irrigation Yarkon-Negev	6,210,000	Loan
	12-232	Regional Irrigation (Mekorot)	350,000	Loan
	12-216	Expansion of Irrigated Areas	5,000,000	Loan
			12,710,000	
FY 57	12-241	Agricultural Development	14,537,500	Grant
FY 58	12-253	Expansion of Agriculture	13,500,000	Grant
FY 59	12-264	Expansion of Regional Irrigation (Mekorot)	12,639,983	Grant
FY 60	12-264	" " " "	13,500,000	Grant
FY 61	12-264	" " " "	4,571,017	Grant
			IL.82,569,000	

BREAKDOWN OF LOANS USED FOR AGRICULTURE UNDER SEC. 104(g) OF P.L. 480

FY 55		Regional Irrigation Mekorot Kishon Valley	IL.7,066,600
	12-200	" " " Ayalon	1,790,000
	113	Fruit Plantations	1,393,399
			10,249,999
FY 56	12-212	Irrigation Mekorot	9,761,856
	12-229	Agricultural Settlements	5,000,000
	12-230	Agricultural Land Preparation	650,000
	17-233	Agricultural Afforestation	700,000
	11-231	Agricultural Beit Dagon Research	593,000
			16,704,856
FY 58	12-252	Expansion of Irrigation Mekorot	13,125,000
	12-260	Expansion of Existing Settlements	2,321,564
			15,446,564
FY 59	12-220	Expansion of Agriculture	1,040,000
	12-271	Local Water Irrigation Scheme	1,630,000
		" " " "	4,200,000
			6,870,000
FY 60	12-270	Expansion of Agriculture	6,210,000
	12-271	Local Water and Irrigation Schemes	5,384,000
			11,594,000

FY 61	18-291	Loans for Development of Fish Ponds	300,000
	12-295	Loans for Local Water	2,080,000
	12-294	Loans for Development of Arab Farming	300,000
	12-296		700,000
	13-289	Loans for Expansion of Livestock	100,000
	12-290	Development of Sea Fisheries	100,000
	13-292	Loans for Expansion of Plantations	1,000,000
			4,580,000
		Grand total	IL.65,445,519

ANNUAL GROWTH OF ISRAEL'S AGRICULTURE

VALUE OF AGRICULTURAL PRODUCTION IN 1948/49 PRICES

(1948/49 - 1960/61)

Year	Value (IL Million)	Index Base: 1948/49=100	Annual Change Previous year = 100
1948/49	44.4	100	
1949/50	58.2	131	131
1950/51	61.2	138	105
1951/52	75.2	169	124
1952/53	81.4	183	108
1953/54	97.7	220	120
1954/55	106.5	240	109
1955/56	126.7	286	119
1956/57	139.8	315	110
1957/58	162.5	366	116
1958/59	187.9	423	116
1959/60	197.8	439	105
1960/61	216.6	490	109

Source: Central Bureau of Statistics

INDEX OF REAL INCREASE OF VALUE OF PRODUCTION OF MAJOR AGRICULTURAL BRANCHES 1948/49 - 1960/61
(1948/49 PRICES; 1948/49=100)

Branch	48-49	49-50	50-51	51-52	52-53	53-54	54-55	55-56	56-57	57-58	58-59	59-60	60-61
Total	100	131	138	169	183	220	240	286	315	366	423	439	490
Field crops	100	155	119	241	250	323	324	412	511	460	548	500	637
Vegetables & potatoes	100	151	172	213	245	268	277	304	319	347	345	365	345
Citrus fruit	100	108	121	116	137	185	165	184	188	194	239	252	214
Other fruit	100	87	82	158	165	210	174	289	280	365	416	440	594
Milk	100	122	137	160	177	203	225	237	254	293	342	359	374
Eggs	100	135	162	151	152	171	213	218	266	373	440	472	558
Cattle numbers Dairy, beef & calves (000)	33.6	47.7		65.7	72.5	79.0	84.1	91.6	115.7	152	179.7	185.4	
Of which beef 1/	0			1.5	3.0	5.0	11.1	14.8	27.0	39.0	50.0	58.4	
Beef liveweight in 000 kilograms	100	136	136	138	160	190	339	473	472	686	868	990	1124

1/ Only cattle for fattening for slaughter

Source: Central Bureau of Statistics

APPENDIX VII

RECENT DEVELOPMENTS IN ISRAEL'S AGRICULTURE

A. Cotton Production 1951/52 - 1960-61

Year	Cotton-lint (tons)	Cotton-seed (tons)
1951/52	0	0
1952/53	20	30
1953/54	250	500
1954/55	2,200	4,000
1955/56	3,200	5,250
1956/57	4,100	6,700
1957/58	4,860	8,020
1958/59	7,300	12,150
1959/60	10,650	16,878
1960/61	14,000	22,000

B. Beef Cattle Numbers

Year	Beef-cattle
1950	410
1952	1,530
1954	5,005
1955	11,100
1956	14,800
1957	27,000
1958	39,000
1959	50,000
1960	58,500

C. Export of Baby-Chicks & Hatching Eggs

Year	Export
1956/57	655,000
1957/58	1,880,000
1958/59	1,900,000
1959/60	6,600,000
1960/61	19,000,000

D. Tractors, Grain Combines and Balers in Agriculture 1949 - 1960

Type of Machinery	1949	1952	1956	1958	1960
Tractors	1,296	3,133	4,765	5,560	7,425
Crawler	716	1,580	1,590	1,640	1,825
Wheel	580	1,553	3,175	3,920	5,600
Grain Combines	489	784	1,020	950	974
Balers	332	563	765	795	845

Source: Statistical Abstract of Israel. 1961. No. 12.

GROSS INVESTMENT; 1950 - 1961
(IL Millions. In constant (1959) prices)

	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Agriculture & Irrigation	124.8	131.9	130.0	153.8	157.7	144.4	142.4	156.4	193.9	179.9	170.5	169.4
Industry, Mining & Power	135.4	182.2	157.5	121.9	127.3	139.4	173.5	150.5	207.6	244.0	228.5	269.4
Transport	95.6	85.6	83.8	57.8	52.2	79.3	98.2	148.1	109.5	127.1	151.4	226.6
Trade and Services	38.6	56.5	44.2	36.9	34.8	82.0	85.3	107.0	118.7	142.0	158.5	180.7
Housing	262.2	300.9	232.3	199.8	241.0	286.2	241.2	289.9	277.5	307.0	289.2	332.7
Total	656.6	757.1	647.8	570.2	613.0	731.3	740.6	851.9	907.2	1000.0	998.1	1178.8

(In Percent)

Agriculture & Irrigation	19.0	17.4	20.1	27.0	25.7	19.8	19.2	18.3	21.4	18.0	17.1	14.4
Industry, Mining & Power	20.6	24.1	24.3	21.4	20.8	19.1	23.4	17.7	22.9	24.4	22.9	22.9
Transport	14.6	11.3	12.9	10.1	8.5	10.8	13.3	17.4	12.0	12.7	15.1	19.2
Trade and Services	5.9	7.5	6.8	6.5	5.7	11.2	11.5	12.6	13.1	14.2	15.9	15.3
Housing	39.9	39.7	35.9	35.0	39.3	39.1	32.6	34.0	30.6	30.7	29.0	28.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bank of Israel; Central Bureau of Statistics

APPENDIX IX

NUMBER OF GAINFULLY EMPLOYED BY ECONOMIC SECTORS: 1950 - 1961

(Thousands)

	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Agriculture	65	79	91	91	94	102	106	110	115	120	120	122
Industry, Mining & Power	96	116	122	133	138	136	144	154	162	170	179	194
All Other Branches*	238	301	331	320	332	339	354	374	378	390	403	419
Total	399	496	544	544	564	577	604	638	655	680	702	735

(In Percent)

Agriculture	16.3	15.9	16.7	16.7	16.7	17.7	17.6	17.3	17.6	17.6	17.1	16.6
Industry, Mining & Power	24.1	23.4	22.4	24.5	24.5	23.6	23.8	24.1	24.7	25.0	25.5	26.4
All Other Branches	59.6	60.7	60.9	58.8	58.8	58.7	58.6	58.6	57.7	57.4	57.4	57.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* Construction and public works, transport and communications, commerce, finance and insurance, public services, and other services.

Source: Bank of Israel; Central Bureau of Statistics

APPENDIX X

GROSS NATIONAL PRODUCT 1955 - 1961
(IL Millions)

	1955	1956	1957	1958	1959	1960
Gross National Product	2,148	2,603	3,033	3,466	4,009	4,451
Net Domestic Product	1,775	2,096	2,470	2,807	3,170	3,503
Thereof:						
Agriculture, Forestry and Fishing	200	244	322	373	385	408
%	11.0	11.3	12.7	12.9	11.8	11.3
Mining, quarrying and manufacturing	403	468	546	627	716	805
%	22.1	21.8	21.6	21.7	22.0	22.3

SHARE OF PRODUCTION BY
KIBBUTZIM, MOSHAVIM AND OTHERS
(in percent)

		Kibbutzim	Moshavim	Others
1.	Area of Field Crops (1959/60)	54	26	20
	Thereof: Unirrigated crops	58	22	20
	Irrigated crops	35	43	32
2.	Area of Vegetables (1959/60)	19	48	33
	Thereof: Potatoes	37	39	24
	Vegetables	14	51	35
3.	Production of Table Eggs (1960/61)	20	50	30
4.	Production of Hatching Eggs (1960/61)	67	18	15
5.	Production of Broilers (1960/61)	35	27	38
6.	Production of Milk (1960/61)	32	62	6

APPENDIX XIII

REPORTS PREPARED BY TECHNICIANS & CONSULTANTS

AUTHOR	TITLE	DATE
CREEL, Cecil W.	Report on Agricultural and Home Economics Extension Service in the State of Israel	November 1953
BESSE, Ralph E. & MILAM, Ford M.	Coordinating and Developing Israel's Agricultural Research Program	February 1954
LETTS, Thomas E.	Expanding and Developing Educational Opportunities in Israel	July 1954
SMITH, Winslow W.	Aid in the Control of the Diseases of Farm Animals - Tuberculin Production	August 1954
LIEBERMAN, Morton	Sewerage & Sewage Treatment Survey City of Ashkelon	March 1955
" "	Sewerage, etc. - City of Jerusalem	" "
" "	" " - City of Lod	" "
" "	" " - City of Nahariya	" "
" "	" " - City of Natanya	" "
" "	" " - City of Ramle	" "
" "	" " - City of Rehovot	" "
KILLOUGH, John R.	Rangeland Management and Improvement of Forestry and Fisheries	July 1955
DENNIS, Joseph M.	Sewerage and Sewage Treatment Survey City of Tiberias	September 1955
MARBLE, Dean R.	Analysis of the Poultry Breeding Program in Israel	October 1955
ORVIS, Paul RUGH, Dwight WEAVER, W. Jack EMERSON, Lynn A.	Interim Report of the Commission on Educational Policy	September 1955
DENNIS, Joseph M.	Sewerage and Sewage Treatment	November 1955
NELSON, Ben	Animal Genetics and Applied Breeding	December 1955
OLAFSON, Peter	Bovine Hyperkeratosis in Israel and some problems in diagnosis	December 1955
WALLACE, James	A Report on Observations made and Research initiated in Israel during a two-months period as consultant on USOM sponsored plant virus disease project	1955

AUTHOR	TITLE	DATE
SCHIELE, Palmer	Improvement of Range Lands thru Control and Utilization of Run-Off Water and Livestock Handling Facilities	February 1956
BRANYON, Donald L.	Field and Horticultural Crops	May 1956
STOPPER, William	Poultry Management	July 1956
SCHUMAN, Bernard K.	Summary Report on Dairy Sanitation	July thru October 1956
WEAVER, W. Jack	Agricultural and Homemaking Education in Israel Schools	September 1956
BRIDGES, James	Activities of the Training and Testing Farm	October 1956
HAAG, J.R.	The Livestock Industry in Israel's Nutritional Economy	October 1956
PERLMUTTER, Alfred	Sea Fisheries	October 1956
PRICE, William	Irrigation Research in Israel	November 1956
MANLEY, Frank	Report on Veterinary Bacteriology	June 1957
BIRDSALL, Webster	Improvement of the Marketing Procedure for the Agricultural Products of Israel	July 1957
FOOTE, Norman H.	Agricultural Machinery in Israel	July 1957
ARCENEAUS G. & LUNIN, J.	Sugar Cane as a Potential Commercial Crop for Israel	September 1957
JOHNSON, I.B.	Proposals and Recommendations	March 1958
THOMAS, Tom B.	Quality Control of Concrete	March 1958
SCHUMAN, Bernard K.	Dairy Sanitation in Israel	June 1958
GINSBURG, Joseph	Plant Protection and Toxicology	July 1958
HARLAN, Wilbur	Agricultural Research in Plant Breeding	July 1958
WATTS, Nellie	Extension Work in Home Economics	August 1958
THOMPSON, Charles	Development of Extension Service	September 1958

AUTHOR	TITLE	DATE
WEAVER, W. Jack	Agricultural and Homemaking Education in Israel Schools	April 1959
BLANEY, Harry F.	Irrigation Research and Water Utilization in Israel	July 1959
CARPENTER, Roswell	Forest Utilization in Israel	August 1959
LEVINE, Moses	Cereal Rust Research in Israel	August 1959
JOHNSON, Leslie E.	A Beef Cattle Breeding Program	October 1959
SAINSBURY, G.F.	Handling, Transporting & Storing Deciduous Fruits & Vegetables for Export	February 1960
JOHNSON, I.B.	Coordination of Israel's Agricultural Education, Research and Extension	May 1960
SHORT, L.R.	Range Land & Livestock Management	July 1960
SWIFT, L.W.	Nature Conservation in Israel	July 1960
BROWN, Ewing	Feed Microscopy	February 1961
SMOCK, Robert	Storage Problems of Deciduous Fruits	August 1961
SMITH, Robert S.	Development of a Farm Management Extension Program	September 1961
McGAUHEY, P.	Dan Region Waste Water Reclamation Project	November 1961
GEISER, Arthur	Agricultural Aviation in Israel	February 1962
HAYES, D. Leo	Development of Agricultural Extension Service	March 1962
ALEXANDER, Martin	Development of Agricultural Microbiology	April 1962
HUSTON, Velma G.	Extension Work in Home Economics in Israel	April 1962
ANDERSON, Clarence S.	Agricultural Education in the State of Israel	May 1962
LEVINE, P.P.	The Department of Poultry Diseases at the Veterinary Institute, Beit Dagon	May 1962

AUTHOR	TITLE	DATE
BUNTIN, L. Ann	Home Economics Education in the State of Israel	June 1962
KUNSELA, W.R.	Development of the National and University Institute of Agriculture	June 1962
LYNCH, Michael R.	Audio-Visual Services in the Agricultural Extension Service in Israel	June 1962
SCHUMAN, Bernard K.	Development of the Dairy Industry in Israel with Emphasis on Sanitation and Economic Aspects	June 1962
SHEPARDSON, E.S.	The Farm Machinery Program in the National and University Institute of Agriculture	June 1962
SCHNEIDER, Robert	The Cenomanian-Turonian Aquifer of Central Israel -- Geohydrologic Factors Related to its Further Development and Use as a Storage Reservoir	June 1962
TIERKEL, Ernest S.	Rabies Control in Israel	June 1962
PETERSON, George L.	Activities of the Agriculture Division 1952-1962	June 1962