REPORT FOR THE PERIOD
8.7.70-15.11.70

ASELLA DECEMBER, 1970

CADU Publication No. 54
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### Appendix: List of CADU Publications
PART I  INTRODUCTION

This report is prepared at the request of SIDA in connection with the extension of the CADU agreement by six months from July 8 to December 31, 1970.

A summary of the planned activities as contained in the CADU Work Programme for the period 8.7.70 - 31.12.70 is given for each section, as are brief statements on the activities undertaken. This introductory note will thus be confined only to some of the salient features of the period 8.7.70 - 15.11.70.

1. Internal

1.1 The time of reporting is less than ideal. The statements made are relevant for the period 8.7.70 - 15.11.70 i.e. just over four months for a work programme covering six.

1.2 Subsequent to the earlier decision not to allow CADU to undertake any construction programme Eth. $144,000 for stores and Eth. $41,850 for trade centres have been approved. This will mean considerable savings in terms of storage and handling costs, transportation, spoilage rates and insurance fees (5% vs 2.5% for "good" stores as opposed to "inferior" ones-which are what are generally available within the Project Area). Unfortunately due to unavoidable delays in securing the approval of the Ministry of Public Works for the buildings, the stores will probably not be quite ready for the peak period as originally hoped.

The temporary freeze on the construction programme and consequently on acquisition of equipment have quite obviously affected the 1970/71 programme proposed in Publication 45. However even if the one year work programme and budget had been approved as proposed, completion of the building programme would have been unlikely. The staffing of the Infrastructure Dept., the setting-up of a new department, the acquisition of equipment etc. would have absorbed some considerable time. From this point of view the six-month extension with the conditions stipulated by SIDA are not as serious as feared. The effect will rather be felt in subsequent years in terms of delays in the envisaged expansion programme. The adverse effect will however not be very great if, once the Infrastructure Department is set up, the construction programme is undertaken at an accelerated rate.

Further, some of the building and construction now proposed for the second half of 1970/71 can be undertaken even before the establishment of the Infrastructure Department. This will also further minimize the adverse effect of the freeze.
1.3 Despite an initial period of despondency following the failure to have the land reform bill presented to Parliament during the period the first CADU agreement was in force, the results have in general been much better than predicted. The number of borrowers has grown to almost 4,600. Perhaps even more significant than the absolute number of borrowers is the proportion of tenant borrowers. From less than 15% in the previous year the proportion has risen to over 33%. With the impending land reform bill an even larger proportion of tenants can be expected to benefit.

1.4 The recruitment question of Ethiopian staff particularly in the "high level" category still continues to be acute. The question mark that once seemed to loom so large on the future of CADU partly accounts for this. Much more serious is the limited housing. The question of the incorporation of CADU staff in the Government pension scheme is still unsettled and this, plus the condition of contract employment, all seem to militate against attraction of staff. To date, not counting the staffing needs of the Infrastructure Department, nine "high level" positions that urgently need to be filled are vacant.

1.5 In the foreign staff category, in addition to staff required for the Infrastructure Department, the position of the Head of Crop Production Department and temporarily that of the Veterinary Section were vacant. Both are however competently run by acting heads. The situation is likely to be critical from the end of this budget year when a number of the present staff leave for home at the end of the in contracts.

1.6 During the period Messrs. Hultnas and Oscarsson made a short visit and fruitful discussions were held among other things in the field of utilization of upgraded cattle. In order "to break the supposed inbreeding of stock and for a slight genetical improvement F. bulls produced are to be sold to farmers." Also it has been decided to arrange for a daily run of inseminators to provide AI services for any farmer asking to have his cow inseminated.

1.7 Dr. Henner also visited CADU in November and has completed his study on the water programme for the present Project Area. (CADU Publication No. 55). The second half of the present budget year will mark the beginning of the implementation of the water investigation programme. For single households in "built-up" areas wells for collection of rain water seem to be the most promising source. This will be further investigated in the coming half year. Some limited demonstrations are also planned for model farmers. For "built-up settlement areas (Huruta, Ethaya, Gonde, Dighelu etc.) gravity water supplies seem to be the most feasible. For dry rural areas, especially those with cattle, excavated ponds seem recommendable; For the rather dry northern area, as well as for the central parts of the Project Area, drilled wells and/or excavated ponds seem to be the most feasible. Eth. $100,000 worth of equipment will be requested for the second half for the implementation phase.
1.8 Despite the additional fleet of vehicles lack of adequate transportation has remained a crucial problem. This was true in particular in the case of the Crop Production, Commerce and Industry Departments, the Livestock Production (Gobe), Veterinary and Planning and Evaluation Sections.

1.9 The forestry protection aspect of the activities of the Forestry Department still remains futile — there is not much to protect. But the Government land reforestation programme seems to be even more promising than anticipated.

1.10 The implements research activities have now come closer to fruition. Carts, wheel-barrows, ploughs and harrows have been produced in limited numbers and distributed to selected farmers. The reception has proved very promising and a pre-feasibility study on production of implements will be undertaken in conjunction with the planned "trade school" study.

1.11 From among the tenants at Gobe 103 farmers have already been selected for settlement at Asassa and a strategy of settlement is being worked out. The biggest problems in the settlement scheme remain to be the adjustment of attitude required from one mode of life to another. In the technical field the extension work required to transmit new skills, the shortage of construction material, fuel and the different diet of the people pose quite tricky and difficult problems.

1.12 The expansion of the extension service and the marketing work has proceeded at a satisfactory rate. The first bunch of assistant agricultural extension agent trainees seem to be working very well. This opens very interesting avenues of development — a much less expensive way of expanding the extension network than reliance on the relatively more expensive graduates from Jimma and Ambo Institutes of Agriculture. It is also one way (albeit limited) of combating the "youth drain" from the country side.

The co-operative and women's extension activities have proceeded at a much greater pace than in the past. With the completion of the present course by the women's extension workers the women's activities are anticipated to show even better results.

1.13 A Common Services Department has been created embracing General Administration, Carpool, Workshop and Maintenance and Catering Sections.

1.14 A number of visitors visited CADU: among them were Mr. Robert McNamara and H.E. the Swedish Ambassador. Mr. Lars Leander from SIDA also visited CADU and among other things discussed and worked on a revised draft plan of operation covering the period 1.1.71 - 7.7.75.
2. **Supporting measures**

2.1 In his coronation speech of November 2, as reported by "Addis Zamen", the Emperor emphasized the central importance of improving the land tenure system since this affects the lot of the majority of Ethiopians. "In view of the great care required to prepare the bill on land reform it has not been possible to pass it to Parliament in the previous year. In order to fully exploit the wealth of the country it is necessary to define the relationship between landlords and tenants and to ensure proper registration of land ownership. Since this has been given priority in our development plan we have arranged for the preparation of land reform bills". He further emphasized his belief that the bill would accelerate Ethiopia's development effort and the need for Parliament to deliberate on the bills "with care and positive spirit".

2.2 The Council of Ministers considered the report of the special committee on the proposed bill governing the relations between landlords and tenants on 14.11.70. At a second session held on November 25, the Council adopted the proposed bill with "slight amendments" and referred it to the Emperor for approval. As per Article 71 of the Revised Constitution, upon approval by the Emperor, the bill will be communicated by the Prime Minister to Parliament for legislative consideration.

2.3 An investigation made in a small part of the Project Area covering an estimated area of almost 51,000 hectares has revealed that due to accelerated mechanized farming and the concomitant result of eviction of tenants bold and imaginative measures are required to combat the social problem. Among the measures that seem to offer promising solutions are resettlement schemes and industrial ventures to offer employment for evicted tenants. Establishment of the latter is a very slow process and the former, difficult as it is, requires drastic measures by the Government. A follow-up study will be completed in December. The problems that have to be faced are: securing suitable Government land of meaningful magnitude; and a possible modification of the CADU goals and objectives, but particularly of the means used by CADU to achieve its objectives. In particular this may mean creating a resettlement section and modification of the credit scheme to enable tenants to pay higher rents. (With increased competition for land from owners themselves who mechanize, from contract farmers and from among the tenants themselves rents are likely to increase.) Another alternative is for CADU to rent land itself and in turn rent it out to tenants. Such actions by CADU on such sensitive issues would be likely to give longed-for ammunition to those who are not positively inclined towards CADU. These in particular are big farmers and "part-time farmers" (some Government officials, judges, merchants etc., who in addition to their regular work do some farming). They are excluded from the CADU credit programme.
2.4 The attitude of the courts has been very negative towards CADU. The main reasons seem to be the exclusion of judges from the credit programme and the case CADU had taken to the court on behalf of some 33 tenants who were allegedly evicted unfairly. In the long run an upgrading of the judges is needed to make for justice. In view of the negative attitude of the courts CADU is planning to introduce a clause in the "model lease" to enable it to interfere should disputes arise.

2.5 The Asella-Dodota road feasibility study has just been completed by the Santi Consulting Engineers. A pre-appraisal team from the IBRD is expected to "pre-appraise" the study. The road is said to be given the highest priority.

2.6 The proposal on the agricultural services unit has been modified and has now turned out to be a proposal for the creation of an Extension and Project Implementation Department. It will be built on the existing extension service of the Ministry of Agriculture and "minimum package" strategy will be grafted on it. "This implies a co-ordinated effort of demonstration of new techniques, supply of inputs and credit in areas where research results are available or applicable." The Department is also expected to co-ordinate the activities of the comprehensive projects. This opens up very exciting opportunities for CADU to train staff, expand its seed production and the cattle breeding programme.
PART II ACTIVITIES BY SECTIONS

0 PROJECT DIRECTION

0.1 Planning and Evaluation Section

A. Planned activities

In CADU Work Programme and Budget for the Period 8/7 -31/12/70 the following activities are mentioned:-

1. Feasibility studies
   On establishing a maltings;
   on establishing a plant for mixing of Pafa and for oil extraction;
   on establishing a slaughterhouse with a hide and skin processing plant.

2. General surveys - collection of base-line data
   A population study in Dighelu and Tijo Woreda;
   price investigation for agricultural produce.

3. Evaluation activities
   A study on farmers' income situation;
   crop sampling in the project area;
   a study on the tenancy situation and the effects of large scale farming.

4. Special studies
   As requested by other sections

B. Activities undertaken

1. Planning activities
   Work on a pre-feasibility study on establishing a slaughterhouse and a hide and skin processing plant has been started.
   The feasibility studies on production and marketing of charcoal from Eucalyptus wood and on the suitability of Ethiopian briar for manufacturing smoking pipes are still going on.
   A study of the problem connected with the resettlement of tenants from the Gobe farm to the Asassa area has been started and will be reported during November.
2. Evaluation activities

A report on a before-measurement of the Women's Extension Programme has been completed.

The report on the after-measurement of "Training of Model Farmers" has been submitted.

A report on the CADU credit programme will be completed before the end of November.

A supplementary study on the tenancy situation and the effects of large scale farming in the southern project area has been made and will be submitted during November.

The crop sampling study is going on and will be completed in the first months of 1971.

An attempt at measuring the total impact of the CADU package is being made. For this purpose an interview study with some 250 farmers on economic conditions and a depth-study of 12 selected peasants are carried out. The findings will be presented towards the end of 1971.

3. Other activities

The field work for the population study in Dighelu and Tijo Woreda (mentioned in the Work Programme) has started and is planned to go on for the next 8 - 12 months.

As before the Planning and Evaluation Section has assisted other sections with minor investigations and with the planning of different activities.

C. Divergence from the Work Programme

The only activity mentioned in the Work Programme that has not been undertaken is the final feasibility study on the relocation of Fafa production. It has been postponed at the request of ENI in Addis Ababa.

The study on establishing a maltings will not be completed before the beginning of 1971. After the harvest (Nov. - Dec.) selected samples of malting barley will be sent to Denmark for analysis and malting trials. As soon as the results of these tests are known the feasibility study will be finalized.
Much work, not mentioned in the programme, has been done by the section:

- a study on the resettlement of tenants from the Gobe Farm;
- discussions of criteria for the establishment of new trade centres and extension area;
- a prediction of the demand for fertilizer for the coming season;
- a study on the distribution of credit to the farmers, the before-measurement of the women's extension programme etc.

D. **Effects of divergence**

Lack of capacity and requests for unforeseen investigations have necessitated frequent changes in priority among the different activities. The flexibility that the section should have has so far mostly been taken from capacity for feasibility studies.

This is felt to be unfortunate since it means that several promising feasibility studies have had to be postponed and eventually new opportunities to broaden CEDU's activities.

More time and capacity will be reserved for feasibility studies in the coming Work Programmes.

E. **Problems encountered**

Especially during the harvest time (Oct. - Dec.), when the resources consuming crop sampling study is carried out, the section has faced a shortage of transport facilities for the field work. This has decreased the efficiency of its work.

F. **Staff situation**

There is still a vacancy for an Ethiopian economist. Reinforcement of the staff is badly needed since the section is constantly suffering from lack of capacity. Recruitment continues.
A. Planned activities

According to the plan this period should be only a continuation of the going programme and no new activities should be added.

B. Activities undertaken

1. The Sagure Clinic

Fully staffed as from July 8, the Sagure clinic has been operating as an ordinary Health Centre. The expatriate Nurse Miss Friis has gradually finished off her job at the clinic and from the beginning of November the work is being carried out by the Ethiopian staff only. All activities are still supervised by the CADU physician through weekly conferences and visits.

According to the plan the governmental health station in Bekoji has been included as our 3rd satellite clinic as from October 1. After some preparatory work including construction of a simple waiting room (not foreseen in the plan of work for the period), tidying up and some slight changes of the existing localities we started going there once a week with our mobile team for the MCH activity but also for school health checkups, supervising the ordinary staff etc. The attendance rate to the MCH clinic has been surprisingly high, also the visits to the health station when only the ordinary staff are on duty have increased encouragingly (see below)

<table>
<thead>
<tr>
<th>Quantified activity July - Oct.</th>
<th>Number of visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curative service.</td>
<td></td>
</tr>
<tr>
<td>Sagure</td>
<td>3,324</td>
</tr>
<tr>
<td>Golja</td>
<td>1,496</td>
</tr>
<tr>
<td>Dighelu</td>
<td>633</td>
</tr>
<tr>
<td>MCH.</td>
<td></td>
</tr>
<tr>
<td>Sagure</td>
<td>360</td>
</tr>
<tr>
<td>Golja</td>
<td>182</td>
</tr>
<tr>
<td>Dighelu</td>
<td>55</td>
</tr>
<tr>
<td>School clinic (closed during the vacation)</td>
<td></td>
</tr>
<tr>
<td>July - September</td>
<td>64</td>
</tr>
</tbody>
</table>
Quantified activity July - Oct.  No. of visits

Vaccinations 1,945
Laboratory work 899
Health Education 15 sessions, 24 hours
Family planning 49
Sanitary work: 3 latrines dug, one well protected. Routine inspections
Surveys: Investigation of the habits and costs of coffee, tea, tobacco and alcoholics.

2. The CADU Staff Clinic

During the whole period the work has continued as before in spite of the steady increase of the workload with the attendancy rate doubled in one year. Because of the family guidance activity being unacceptable to the Swedish Mission B.V., even if given within the framework accepted by the government, the Mission has terminated the contract with CADU and SIDA as from November 1. Preparatory work has been undertaken to move a part of the Staff Clinic activity to localities in the Car-pool compound. At Asella Health Centre a daily clinic will be held for the staff according to an agreement between CADU and the responsible authorities. Because of the cholera epidemic these arrangements have had to be postponed for at least a month.

Quantified activity July - Oct.  No. of visits

Curative service 4,005
Vaccinations 4,001
Health Examinations 85
Lab. work: No. of examinations 1,616
Family planning 29
Surveys: Screening of the staff at the Livestock and Gobe Farms regarding brucellosis
Analysis of the result of a vaccination campaign against typhoid.
3. **Asella Family Guidance Clinic**

No change in staff or working conditions during the period. The frequency of visits seems to be stabilized and we have not faced any specific problems. The Reg. Nurse and the Health Officer at Sagure Clinic have been trained to deal with the different family planning methods:

<table>
<thead>
<tr>
<th>Quantified activity</th>
<th>No. of visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of sessions</td>
<td>29</td>
</tr>
<tr>
<td>Number of new visits</td>
<td>89</td>
</tr>
<tr>
<td>Number of revisits</td>
<td>103</td>
</tr>
<tr>
<td>Total number of visits</td>
<td>192</td>
</tr>
</tbody>
</table>

4. **Other activities**

1. Two courses in Health and Hygiene (25 and 30 hours respectively) have been held for assistant extension agents and women's extension agents.

2. On request from SIDA a survey of the existing health facilities of Arussi has started (and would have been completed by now had not the cholera emergency arisen)

C. **Staff situation**

The Registered Nurse completed her contract and partly as a replacement but more to assist in the preparation for the expanded health programme a new Registered Nurse was employed in October.
Water Development Section

A. Planned activities

1. Investigation of rivers (measurements of discharges and quality tests, etc.)

2. Investigation of ground water (cable-tool drillings, test pumpings, observations of water table, sampling for quality, etc.)

3. Research and survey for water supplies (research and experiments on household wells and excavated ponds, water balance studies, etc.)

4. Construction of water supplies

B. Activities undertaken

During this period the Section was engaged in checking data and other statistical work for a two-year report "Master Plan for water resources and supplies within CADU's first project area," which is now finalized.

Aerial pictures have been collected to a mosaic map showing rivers, roads, built-up areas and dwellings in rural areas for all the Chilalo Awraja. Distances and angles cannot be quite correct in such a map but it shows details for different areas better than the present maps. With the aid of the mosaic, geographical and population distribution maps for all the awraja have been drawn. The geographical map will be used for the survey of perennial rivers and later for calculations of the demand for water.

The investigation programme for surface water has been continued normally, in 10 rivers, in the drainage basin of Lake Langano. Chemical analyses for water samples have been taken in all these rivers. All are found to be potable.

For the investigation of ground water the following boreholes have been drilled.

<table>
<thead>
<tr>
<th>Borehole No.</th>
<th>Drilling period</th>
<th>Name of drilling site</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>8/6/70-27/7/70</td>
<td>Boledena</td>
<td>175 m</td>
</tr>
<tr>
<td>25</td>
<td>4/8/70-18/9/70</td>
<td>Nino</td>
<td>200 m</td>
</tr>
<tr>
<td>26</td>
<td>23/9/70-</td>
<td>Ego Mariam</td>
<td>Ordered depth</td>
</tr>
</tbody>
</table>

250 m
All these boreholes are situated on the Luckuche Plain between Munessa and the Katar River. Until now no evidence of water has been observed within the depths drilled.

As stated in the CADU Annual Report 1969/70 several pits have been dug in three different soil and weather condition areas. Because of abnormal weather conditions during the last rainy season, no definite conclusions can be drawn from the observations carried out until now. Anyhow, observations shall continue in the Dodota and Asella areas. In addition some observations are proceeding in the Kulumsa trial area as to runoff and seepage. Mr. Goran Hansson, at present, is preparing a separate report on these water balance studies.

Observations of water holding capacity of some experimental household wells have continued.

In boreholes where the water has been struck at comparatively shallow depths and where the yield was found to be quite appreciable, hand pumps have been used to lift the water to the surface. At present two hand pumps have been installed, the first in Waji area and the second near the Kulumsa farm. These hand pumps will not only demonstrate a cheap method for lifting water from depths up to 70 m, but could also be used to supply local and passing people and cattle with water.

D. Divergence from the programme and reasons

Because of the budget cut, nothing has been made on the construction of water supplies. For the same reason other drilling methods than cable-tool drillings have not been used.

D. Adverse effects

Because of the budget cut there is a delay in the implementation of water supplies by at least half a year.

E. Staff situation

There has not been any need of an organizer of water supplies up to now.
1. COMMON SERVICES DEPARTMENT

1.1 General Administration

A. Planned activities

1. Accounting and cashing
2. Personnel matters
3. Purchasing
4. Secretarial work etc.
5. Legal matters

B. Activities undertaken

The activities have been carried out according to the work programme with exception for personnel recruitment.

Employment of a staff manager has not been possible before January 1, 1970. Therefore, in the meantime some personnel matters have still been taken care of by the project direction.

C. Staff situation

A staff manager has been recruited and will start work from the beginning of January.

The employment of a purchase manager has been postponed. Three new secretaries have recently been employed.

1.2 Carpool Maintenance and Stores

A. Planned activities

1. Carpool and Garage
   To arrange transport services for all departments and sections of CADU.
   Repair and maintenance of CADU vehicles, farm machinery and other equipment.

2. Maintenance
   Maintenance and repair of CADU buildings, roads, water work, gardens, etc.
   Minor construction work such as water installations, electrical installations, store buildings, and office facilities.

3. Store
   Ordering, receiving, storing and delivery of materials and spare parts for the project.
B. Activities undertaken

Carpool

For the major part of the period, CADU vehicles have been allocated to sections as per Table 1. Utilization of vehicles by the sections has been as indicated in Table 2.

Vehicles purchased:

- 2 Mercedes 3.5 ton flat bed trucks
- 2 Toyota Landcruiser pickups
- 1 Toyota Landcruiser 9 seater canvas top
- 1 Toyota Corolla station wagon

At present CADU has:

- 36 Toyota Landcruisers
- 6 Standard sedan cars
- 2 Buses
- 3 Trucks and one Trailer
- 10 Motorcycles (farming equipment, tractors, etc. are not included).

The total km consumption during the period 8.7.70 - 30.11.70 has been 364,350 km., as compared to Plan of Work estimate 600,000 km. for the half-year period.

Comparison shows 215,650 km less than estimated partly because December is not included. (November estimated). For various reasons the planned purchasing of vehicles has been partly delayed.

CADU and WADU have together asked for bids on vehicles and tenders are requested for the end of November. As soon as the best bid has been accepted the following vehicles will be purchased:

- One 10-ton truck
- Five 4-wheel drive cars
- Two 2-wheel drive pickups and
- Four standard sedan station wagons
In connection with this purchase 9 vehicles will be sold as previously planned. The motorcycles have all been overhauled and put aside for sale. It is recommended that another type of motorcycles more suitable for cross-country driving be purchased.

The two new 3.5 ton trucks have proved very useful, one being used for daily milk transport and the other for transport of personnel and various other activities. One experienced truck driver and one Toyota mechanic have been employed.

Maintenance

Besides normal maintenance and repair work, a clinic in Bekoji has been modified, a clinic arranged at the carpool and various installations made at Kulumsa. The maintenance engineer, Ato Mohammed, has made inspections of new buildings under construction at Gobe.

Central Store

During the period a total of 1131 store deliveries have been made, thereof 177 cylinders of Butagas.

B. Staff

A Chief Store Keeper has been employed from the end of November.
Table 1. Allocation of Vehicles

<table>
<thead>
<tr>
<th>Section</th>
<th>4-Wheel Drive</th>
<th>Standard</th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Short</td>
<td>Long</td>
<td>Pick-up</td>
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<td>Project Direction</td>
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<td></td>
<td></td>
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<tr>
<td>General Administration</td>
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<td>3</td>
<td>2</td>
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<td>Plan. &amp; Evaluation</td>
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<td></td>
</tr>
<tr>
<td>Construction</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>Public Health</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>Catering</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Water Development</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Carpool &amp; Workshop</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Crop Production</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surveys &amp; Exp.</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impl. &amp; Res.</td>
<td>-</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Kulumsa Farm</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Animal Production</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Commerce &amp; Industry</td>
<td>-</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Ext. &amp; Education</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Forestry</td>
<td>1</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Gobe Farm</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>20</td>
<td>2</td>
<td>14</td>
</tr>
</tbody>
</table>
Table 2. Utilization of Vehicles by the Section during July 8, 1970—November 30, 1970 (in km.)

<table>
<thead>
<tr>
<th>Section</th>
<th>4-Wheel Drive</th>
<th>Standard cars</th>
<th>Buses</th>
<th>Big Truck</th>
<th>Small Truck</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crop Production</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey &amp; Exp.</td>
<td>16,629</td>
<td>961</td>
<td></td>
<td></td>
<td></td>
<td>17,590</td>
</tr>
<tr>
<td>Kulumsa Farm</td>
<td>11,604</td>
<td>805</td>
<td>5</td>
<td></td>
<td>47</td>
<td>12,461</td>
</tr>
<tr>
<td>Assasa Farm</td>
<td>3,057</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3,057</td>
</tr>
<tr>
<td>Impl. &amp; Research</td>
<td>5,264</td>
<td>539</td>
<td></td>
<td></td>
<td>90</td>
<td>5,893</td>
</tr>
<tr>
<td><strong>Animal Production</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research &amp; Livestock</td>
<td>11,419</td>
<td>609</td>
<td>513</td>
<td></td>
<td></td>
<td>12,541</td>
</tr>
<tr>
<td>Veterinary</td>
<td>5,476</td>
<td>2,086</td>
<td></td>
<td></td>
<td></td>
<td>7,562</td>
</tr>
<tr>
<td>Gobe Farm</td>
<td>9,483</td>
<td>1,284</td>
<td></td>
<td>1,299</td>
<td></td>
<td>12,066</td>
</tr>
<tr>
<td>Comm. &amp; Industry</td>
<td>57,252</td>
<td>280</td>
<td>11,326</td>
<td>32,627</td>
<td>101,485</td>
<td></td>
</tr>
<tr>
<td><strong>Extension &amp; Education</strong></td>
<td>43,654</td>
<td>539</td>
<td>303</td>
<td>23</td>
<td>31</td>
<td>44,550</td>
</tr>
<tr>
<td><strong>Forestry</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forestry Extension</td>
<td>5,309</td>
<td>42</td>
<td></td>
<td>518</td>
<td>39</td>
<td>5,908</td>
</tr>
<tr>
<td>Munessa Investigation</td>
<td>8,576</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8,576</td>
</tr>
<tr>
<td>Munessa Protection</td>
<td>686</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>686</td>
</tr>
<tr>
<td><strong>Project Direction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>14,942</td>
<td>19,919</td>
<td>15,863</td>
<td>261</td>
<td>2,482</td>
<td>53,467</td>
</tr>
<tr>
<td>Plan. &amp; Evaluation</td>
<td>13,588</td>
<td>65</td>
<td></td>
<td></td>
<td></td>
<td>13,653</td>
</tr>
<tr>
<td>Catering</td>
<td>320</td>
<td>3,234</td>
<td></td>
<td></td>
<td></td>
<td>3,554</td>
</tr>
<tr>
<td>Carpool &amp; Workshop</td>
<td>22,779</td>
<td>7,303</td>
<td>271</td>
<td>657</td>
<td>645</td>
<td>31,655</td>
</tr>
<tr>
<td>Public Health</td>
<td>11,822</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>11,827</td>
</tr>
<tr>
<td>Water Dev’t &amp; Land Surv.</td>
<td>17,712</td>
<td>150</td>
<td></td>
<td>91</td>
<td>245</td>
<td>18,198</td>
</tr>
<tr>
<td>Asella Water Supply</td>
<td>11,765</td>
<td>6,033</td>
<td></td>
<td></td>
<td></td>
<td>17,798</td>
</tr>
<tr>
<td>1708 Erosion study</td>
<td>120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>Swedish School</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>D A O</td>
<td>1,700</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,700</td>
</tr>
<tr>
<td><strong>Grand total km.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>384,350</td>
</tr>
</tbody>
</table>
1.3 Catering

A. Planned activities
Provision of meals, accommodation, laundry and staff shop.

B. Activities undertaken

1. Restaurant service

The Club-house cafeteria is serving CADU staff and guests. The following number of meals were served during the period 8/7/70 - 13/11/70.

<table>
<thead>
<tr>
<th></th>
<th>Price</th>
<th>Number</th>
<th>Average per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>0.75</td>
<td>1,596</td>
<td>13</td>
</tr>
<tr>
<td>Lunch: Ethiopian</td>
<td>1.00</td>
<td>2,428</td>
<td>19</td>
</tr>
<tr>
<td>&quot; : European</td>
<td>1.75</td>
<td>1,728</td>
<td>14</td>
</tr>
<tr>
<td>Dinner: Ethiopian</td>
<td>1.00</td>
<td>1,268</td>
<td>10</td>
</tr>
<tr>
<td>&quot; : European</td>
<td>1.75</td>
<td>1,098</td>
<td>8</td>
</tr>
</tbody>
</table>

In addition coffee, sandwiches and beverages are available.

The Club-house cafeteria has been used for social events of both official and private kind.

The cafeteria of the Extension Department serves students of the Agricultural School and Women's Extension Unit.

Only Ethiopian dishes are served. The following number of meals were served during the period 8/7/70 - 13/11/70.

<table>
<thead>
<tr>
<th>Meal</th>
<th>Number</th>
<th>Average per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>3,833</td>
<td>30</td>
</tr>
<tr>
<td>Lunch</td>
<td>3,458</td>
<td>28</td>
</tr>
<tr>
<td>Dinner</td>
<td>3,724</td>
<td>29</td>
</tr>
</tbody>
</table>
2. Accommodation

Due to great demand for accommodation within CADU a temporary barrack has been made use of. Several rooms in the Guest-house have been changed into double-rooms. In all 11,718 overnight accommodations have been provided in the Guest-house, boarding-house and barracks during the period 8/7/70 - 13/11/70.

3. Laundry

The laundry is working to full capacity serving the catering section, other sections, students and staff.

4. Staff shop

The staff shop has been further enlarged during the period 8/7/70 - 30/11/70. Turnover per week is about $1,000 and a great variety of food-stuffs are available.

During the period a new accounting system has been introduced. Bin cards are kept.

D. Due to expansion of services an addition of staff has been necessary, including a Store-keeper.
2 CROP PRODUCTION

2.1 Survey and Experiments

A. Planned activities

1. Surveys

   a. Meteorological Surveys
      To increase knowledge of agricultural conditions. To increase knowledge of climate and weather.

   b. Weed and Pest Surveys
      To observe performance of crops and to discover factors which limit improvement of yield and quality of crops.

   c. Crop Surveys

2. Trials and observations

   a. Field Crops
      
      i. Testing of different crops
      To identify most suitable crops.

      ii. Screening of varieties of major crops
      To find high yielding varieties.

      iii. Fertilizer trials
      To determine responses of crops to fertilizers.

      iv. Cultural practices trials
      To find optimum conditions for growing different crops.

   b. Forage Crops
      
      i. Testing of different pasture and hay crops
      To identify best adapted forage crops.

      ii. Testing of varieties of promising forage crops
      To find highest yielding varieties of best forage crops.

      iii. Fertilizer trials
      To determine response of pasture, leys and fodder crops to fertilizers.

      iv. Cultural practices
      To find best methods of growing forage crops & establishing and maintaining pastures.
c. Crop Protection
   i. Weed control
   ii. Insect control
   iii. Disease control

3. Soil testing
   To find the most efficient, economical methods for combating weeds, insects and diseases
   To determine the correlation between chemical tests and field fertilizer trials to make a basis for regional fertilizer recommendations

4. Seed cleaning and testing
   a. Study seed control methods
   b. Seed control
   o. Seed testing
   d. Seed cleaning
   Develop methods for seed control select & supervise contract seed growers
   Laboratory seed analysis, certifying seed
   300 tons of clean seed

B. Activities undertaken

1. Surveys
   a. Meteorological observations have been carried out at Kulumsa, Dighelu, Huruta, Asassa, Gobe and Degaga. No investments in meteorological equipment have been done and there has been no change of the existing network.
   b. No special weed and pest survey has been carried out. See staff situation.
   An investigation of different species of Spodoptera and Plusia (army worms) to be found in the Kulumsa area is going on.
   c. Two crop surveys have been made
      i. Introduced wheat varieties
         Investigation of the resistance to rust diseases
      ii. Fodder beets
         Yield capacity under practical cultivation
         (Model farmers)
2. Trials and observations

Two substations have been established, Bekoji for the high altitude (2,700 m) and Dodota for the low altitude (1,700 m). These stations were not included in the work programme for the period 8/7 - 31/12/70. As early informations about adaptation of crops to different growing conditions are of great value, the substations were erected this growing season. So far no investments have been made.

The 1970/71 experimentation programme is still going on. The volume of the experimentation activities has increased by 12% compared with the previous year's. All together 124 trials and observations are carried out, 62 with field crops, 36 with forage crops and 26 in the field of crop protection.

3. Soil Testing

Soil fertility tests with Crambe abyssinica as an indicator plant for phosphorus deficiency have been carried out in four field trials.

The soil moisture variation throughout the year is being followed at two-week intervals.

Gully erosion control was tried at different places at Kulumsa.

The nutritive laboratory at Kulumsa is under supervision of the soil conservation specialist. During the period indicated totally 164 samples of forage crops and field crops were chemically analysed for nutrients content such as crude protein, crude fibre, fat, ash and moisture.

4. Seed cleaning and testing

a. Seed control

The properties of seed stored under different conditions have been tested. 104 tests for germination capacity and partly for moisture content were conducted.
b. Seed testing

The varieties of wheat increased and distributed to farmers and those under increase but not yet distributed are being studied for varietal characteristics and purity. A few varieties of barley are also under study. Due to poor storage most of the local wheat collection failed to germinate.

Field inspection is carried out in the Kulumsa area, in Asassa and in all demonstration plots located in the different extension areas. There has been only one contract grower of wheat this year.

Due to the expected demand for seed the coming season 700 tons of wheat are planned to be bought from farmers and processed as seed. Over 270 hectares of wheat, mainly Supremo Kenya X Yaqui 48 and Romany have so far been inspected.

c. Seed cleaning

The seed cleaning activity has been separated from grain cleaning and the seed cleaner owned by the Commerce and Industry Department handed over to the Crop Survey and Experiments Section. The cleaning work started on 10,11.70. The expected capacity of the two seed cleaners will be 120 - 150 quintals (running 15 hours) per day.

C. Problems encountered

1. The seed to be cleaned during the coming season is estimated at 2,000 tons compared with 945 tons the previous year.

The present seed cleaners have too low capacity to be adequate to cope with such high production rates and the need for a high capacity seed cleaner is urgent.

In the present situation the cleaners have to be run at least 16 hours per day and the staff work in two-three shifts. A new store is proposed to be constructed very soon. It is badly needed. The existing storing
facilities are inadequate and the seed must be handled in a cumbersome way.

2. The nutrition laboratory is still not working to full capacity. There has been shortage of chemicals. Pure ether (for fat analysis) and Na OH (for protein analysis) are specially needed in large amounts. The determination of crude fibre was started later (27.10.70) due to practical difficulties with the vacuum pump and crucibles.

D. Staff situation

There has been a considerable shortage of staff during the period. A Swedish agronomist took up his duties on the 24th of November. The following positions are vacant.

Foreign staff
1 Crop protection specialist (HL)

Ethiopian staff
1 Agronomist (HL) Asst. Head of Section
1 Seed Assistant (HL)
1 Seed cleaning foreman

2.2 Kulumsa Farm

A. Planned activities

To produce seed of improved varieties for distribution to farmers in the project area.

1. Seed, ha.

<table>
<thead>
<tr>
<th></th>
<th>Kulumsa</th>
<th>Asassa</th>
<th>Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8156</td>
<td>101</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>Romany</td>
<td>149</td>
<td>390</td>
<td>-</td>
</tr>
<tr>
<td>FW/68</td>
<td>15</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LR</td>
<td>11</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Supremo</td>
<td>-</td>
<td>125</td>
<td>-</td>
</tr>
<tr>
<td>Penjamo</td>
<td>-</td>
<td>-</td>
<td>35</td>
</tr>
</tbody>
</table>

b. Other crops

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley</td>
<td>10</td>
</tr>
<tr>
<td>Flax</td>
<td>3</td>
</tr>
</tbody>
</table>
2. **Other rotational crops, ha.**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Kulumsa</th>
<th>Asassa</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rape</td>
<td>57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunflower</td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teff</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. **Machinery services (in hours)**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Kulumsa</th>
<th>Asassa</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Field preparation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harrowing</td>
<td>225</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>Spreading of fertilizer and planting</td>
<td>200</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Transport, levelling</td>
<td>780</td>
<td>600</td>
<td>-</td>
</tr>
<tr>
<td>rolling, cultivating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Dusting and spraying</td>
<td>100</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>c. Harvesting</td>
<td>500</td>
<td>600</td>
<td>-</td>
</tr>
</tbody>
</table>

**B. Activities undertaken**

1. **Area planted (hectares)**

<table>
<thead>
<tr>
<th>Wheat</th>
<th>Kulumsa</th>
<th>Asassa</th>
<th>Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>8156</td>
<td>108</td>
<td>99</td>
<td>-</td>
</tr>
<tr>
<td>Romany</td>
<td>158</td>
<td>397</td>
<td>-</td>
</tr>
<tr>
<td>F W</td>
<td>11</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>L R</td>
<td>15</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Supremo</td>
<td>-</td>
<td>128</td>
<td>-</td>
</tr>
<tr>
<td>Penjamo</td>
<td>-</td>
<td>-</td>
<td>40</td>
</tr>
</tbody>
</table>

**Barley**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Kulumsa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mari</td>
<td>2</td>
</tr>
<tr>
<td>Atlas 57</td>
<td>10</td>
</tr>
</tbody>
</table>

**Other Crops**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Kulumsa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flax</td>
<td>2</td>
</tr>
<tr>
<td>Maize</td>
<td>30</td>
</tr>
<tr>
<td>Rape</td>
<td>53</td>
</tr>
<tr>
<td>Sunflower</td>
<td>21</td>
</tr>
<tr>
<td>Teff</td>
<td>DZ-01-354</td>
</tr>
<tr>
<td></td>
<td>DZ-01-196</td>
</tr>
</tbody>
</table>
2. Only a small portion of the crops is harvested at present but the crops look very promising. The late rains favoured the development of the grain although they have also increased the stem-rust attack on wheat.

The yield from the harvested crops at Kulumsa are per below:

- **Wheat**
  - Romany (only 1 field): 25-28 q/ha.
- **Barley**
  - Mari: 30 q/ha.
  - Atlas 57: Approx. 26 q/ha.

3. Machinery services provided (in hours 7.7-13.11)

   a. Field preparation
      - Harrowing: 171
      - Spreading of fertilizer and planting: 120
      - Transport, levelling, rolling, cultivating: 115

   b. Dusting and spraying: 57

   c. Harvesting: 65

   div.

   **Divergence from the work programme**

   The actual acreage of different crops deviates from the Work Programme as follows:

   - Wheat: 30 ha. more than estimated
   - Barley: 2 ha. less than estimated
   - Flax: 1 ha. less than estimated
   - Rape: 4 ha. less than estimated

   Some new land has been ploughed on the slopes at Kulumsa and the total cultivated area has increased by about 20 ha.
D. Problems encountered

Due to late rainfall this growing season some wheat has been very much attacked by stem rust. The variety LR is practically spoiled at Kulumsa. Part of the early planted Romany at Asasa is also damaged.

The weed infestation has been rather severe in some wheat fields at Asassa. It was not possible to spray because the new sprayer did not arrive in time for the season.

E. Staff situation

There has been no change in the staff situation during the period.

An assistant farm manager for Kulumsa and Asassa farms is needed but the post is still vacant.

2.3 Implements research

A. Planned activities and Activities undertaken

1. Soil preparation

The field trials concerning different types of ploughs and harrows, different ploughing dates and different methods for covering of the seed are being carried out according to the plans. The trials, which also involve the effect of different ploughing dates on water conservation, are not yet harvested. The results are to be expected in December.

2. Crop handling

An investigation through Embassies and technical missions of many countries on the possibilities of finding simple threshers adaptable for our conditions has so far given no results. A prototype of a small thresher ordered from India during 1969 has arrived at the project. The design of this thresher is simple and unconventional, working more or less like a hammer mill and with mainly aspiration cleaning. The results of tests just started will indicate whether the thresher is suitable as an innovation to the farmers in the project area. The experience from the
trials with two new types of grain stores for market-oriented farmers has so far been positive. These trials will be closed at the end of November.

3. **Transportation**

During the period three proto-types of carts have been designed.

Oxcarts with wooden wheels, load-capacity 400 kgs.
Oxcarts with iron wheels, load-capacity 400 kgs.
Donkey - or horse-cart with wooden wheels, load-capacity 250 kgs.

The material cost for the carts varies from $50 to $65; the labour cost is not yet available.

4. **Production of implements**

   a. According to the plan of work the section should produce in general 50 units of each of the following items during the period July - December 1970: harrows, carts, seed/fertilizer bags, hoes and wheel-barrows. Up to now the under-takings have been fulfilled concerning wheelbarrows, harrows, seed/fertilizer bags and hoes. 20 carts will be ready for delivery to the marketing centres before the end of November.

   After tests the VITA-plough has been modified twice and the section has ordered 20 of the final prototype to be made by Ethiopian Metal Tool Factory in Addis Ababa. The ploughs are expected to be delivered at the end of November. The price of the plough is Eth. $31.

   b. Since very little is known about the strength and durability characteristics of the local wood varieties for use as construction materials, an attempt is being made to test and analyse different kinds of wood,
c. A study is being undertaken to estimate the farmers' interest in carts and the probable demand for such items. The result of this study, followed up with an attempt to sell some 30 carts to farmers, will indicate if it is time to create a small scale industry for production of carts.

5. Training programme

a. In the plan of work it was stated that the section during the period July - December should train 10 blacksmiths and 5 carpenters in the making of oxcarts and harrows. According to experience gained it is not possible for artisans to make these items at their homes.

For this reason harrows are at the moment exclusively produced at the village workshop in Sagure. For this purpose 2 artisans have been trained. Training courses will later on be given to artisans on repair of carts and harrows. The carts are presently made at Kulumsa workshop. Most of the parts however, are prefabricated in the central workshop at the project centre.

b. Staff from the section have participated at the agricultural school teaching a total of 48 hours of theoretical and practical training on different subjects within the field of agricultural engineering.

c. At some 20 occasions staff from the section have demonstrated implements to farmers, mostly in cooperation with staff from the Extension and Education Department.

B. Problems encountered

1. The planned training abroad for the Asst. Head of section has not yet materialized. If the delay should extend further than February 1971, difficulties may arise which can jeopardise the plans of the section for the future.

2. The low level of technical skill of the local artisans has been a bottle-neck in motivating the artisans to produce new items at their homes under the supervision of the section.
3. ANIMAL PRODUCTION

3.1 Research and Livestock

A. Planned activities and Activities undertaken

1. Research activities
   a. Feeding trials with dairy cows
      All local cows at the farm have been used for these trials. Trial designs are made out for cross cows and the trials have just started.
   
   b. Feeding trials with rearing calves and young cattle
      All available local calves and young cattle except those used for pasture trial and the breeding bulls have been used.
   
   c. Feeding trials, pasture management
      Eighteen cross heifers have been used for this purpose. Grazing cages have been introduced.
   
   d. Breeding cattle
      Twenty-seven heifers and five breeding bulls have been produced up to now.
   
   e. Breeding sheep
      This part has not been started because it was cut from the budget.
   
   f. Trial for hygienic milking methods
      This has not yet been started because the plant is not yet installed.

2. Model farmers
   a. Selection
      Twenty-three candidates have been interviewed and nine have been selected as "cattle model farmers". So far only five pregnant heifers have been delivered to the new model farmers.
b. Teaching
A course for model farmers is going to be held in late December or early January depending on the time when a sufficient number of model farmers are selected.

c. The supervision and technical advice is going on continuously
The milk recording is done every third week.

3. Farm Management
a. Small scale constructions have been made. Delivery pens for cows, arrangement for brucellosis cows replacement of worn-out constructions like hayracks, feeders etc. have been made.

b. Clearing of natural grassland
This has been performed according to plan.

c. Hay and silage making
Thirteen ha of hay have been harvested and approximately 90 tons of hay have been baled. Maize silage has been made from 1 ha. Six ha of barley has been planted and the yield has been around 20 q/ha. One ha was also planted with barley but this was heavily infested with a grass weed, and the yield was very low. Fodderbeets have been planted on ¾ ha and are not yet harvested.

B. Divergence from work programme

1. The proposed sheep breeding programmes not undertaken.
The fund requested for purchase of sheep was cut out from the budget.

2. Trials with machine milking. The plant is not yet installed.
The installation has, however, started now.

3. Not many model farmers have received pregnant heifers.
Only five heifers have come to the stage of high pregnancy. It would be possible to distribute the cows earlier if this is done as soon as the pregnancy is diagnosed.
4. No fencing of pasture was made. It has been unnecessary to fence the pasture for two reasons:
   a. The herding is done properly by the herds men.
   b. The original grassland is of poor quality and will not repay investment.

C. Adverse effects of divergence

The delay in the sheep breeding programme and the small number of pregnant heifers are the most serious difficulties.

D. Problems encountered

The organization of all activities at the section has been revised. Shift working lists for the crews in the calf shed and the milking parlour are being prepared in order to avoid unnecessary overtime.

E. Staff situation

Addition and/or reduction
One carpenter and two farm workers have been dismissed. One carpenter and four new farm workers have been employed on contract basis.

3.2 Veterinary

A Planned activities and Activities undertaken

<table>
<thead>
<tr>
<th>Description of activities</th>
<th>Production targets</th>
<th>Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8.7 - 10.11</td>
</tr>
</tbody>
</table>

1. Artificial insemination

   a. Inseminations: Livestock, Asella 300 146+23(natural)
      Farmers 150 19
   b. Pregnancy diagnoses: Livestock, " 100 155
      Farmers 40 15
   c. Infertility treatments: Livestock, " 20 15
      Farmers 20 4

2. Preventive veterinary service

   a. Rinderpest: Livestock, Asella 1,000 336
      Farmers 40,000 1915
   b. Other diseases: Livestock, " 1,000 697
      Farmers 10,000 53
Description of activities | Production targets | Achieved
--- | --- | ---
3. Curative veterinary service | | 8.7 - 10.11
   a. Treatment against parasites | Livestock, Asella Farmers | 250 23
   b. Other diseases | Livestock, Asella Farmers | 50 93

4. Laboratory service
   Milk hygiene tests | | 5,000 1532

5. Staff training
   a. Vaccinators | | 5 3
   b. Extension agents and foremen | | 25

6. Cattle crush building | | 2 - 3

3. **Divergence from work programme**

1. The low number of inseminations on model farms compared with the target is caused by the smaller number of model farmers than planned.

2. No rinderpest campaign has been launched by the Veterinary section, since the FAO Rinderpest Campaign is covering the Chilalo area. The vaccinations carried out were mainly done during an outbreak of rinderpest in the neighbourhood of Gobe. No other major disease outbreaks have occurred which has also kept figures for other vaccinations low.

3. No records for curative services have been kept for the Livestock farm from August 1st to September 23rd, and for other farmers from July 8th to September 23rd. Carbon tetrachloride for treatment of liver flukes and Gammatox for ectoparasites have been sold in bulk to the Marketing section, for further distribution to farmers.

4. The number of reductase tests on milk has shown a decrease, reflecting the decreasing number of farmers delivering milk.
5. A course for extension agents is planned for January 71 in which the Veterinary section will take part.

6. Crushes for the planned artificial insemination run will be constructed in the near future.

C. Problems encountered

1. Medical problems

   The main problem has been Brucellosis abortions at Gobe and the low fertility among cattle at Gobe and the Livestock farm. Conception rate after first insemination has been calculated as roughly 30% on 143 first inseminations, which is too low.

2. Staff situation

   Dr. Tillaeus has been Acting Head of Section from 23rd of September. A newly employed Ethiopian Veterinary Surgeon, Dr. Melaku, started his employment on the 11th of November.

   According to work plan, 2 an Animal Health Assistants should be employed. As the Animal health assistant has terminated his employment, there is none at present. Recruitment is under-way but it is considered that one is sufficient for the time being.

3. Vaccinators

   Of 10 vaccinators employed, 3 have terminated their employment. The remaining 7 of which 2 are trained as inseminators are more than sufficient at present.
3.3 Livestock Production (Gobe)

A. **Planned activities**

1. Pasture improvement
2. Herd management
3. Maintenance of fences, enclosures, feeders, roads, buildings
4. Construction work
5. Resettlement of tenants

B. **Activities undertaken**

1. Pasture improvement: 14,000 kg. of urea has been spread on 200 ha of pasture.

2. Herd management: The cattle herd composition as at mid November is as follows:

   **Adult females (955 heads):**

   - Pregnant from insemination: 210
   - Natural service: 82
   - Inseminated, pregnancy not confirmed: 263
   - Not inseminated: 244
   - Cows with baby calves: 123
   - Culled cows to be sold: 28

   **Growing stock (312 heads):**

   - Local female baby calves: 16
   - Local male baby calves: 13
   - Local female young stock: 51
   - Local male young stock: 0
   - Crossbred female baby calves: 44
   - Crossbred male baby calves: 30
   - Crossbred female young stock: 62
   - Crossbred male young stock: 76

During the period 650 inseminations, 775 pregnancy diagnoses and 17,000 vaccinations (of which 12,000 for private cattle owners in the neighbourhood) have been done. Around 400 cattle have been given parasite treatment. Other curative treatment has been given in 260 cases. Only few cattle have been bought because of frequent outbreaks of rinderpest in the area.
A new purchasing system has been devised because of the low fertility rate among the previously bought cattle and because of the serious brucellosis situation. Cattle are now being bought on the farm at a fixed price per head after testing for brucellosis and sexual functions.

3. Continuous maintenance of fences, enclosures, feeders, roads and buildings has been carried out.

4. Construction
Most construction activities were interrupted by the rains until the beginning of November. Now under progress are construction of 4 villas (expected to be completed during January 1971), construction of 20 workers’ dwellings (expected to be completed during December 1970), construction of external water supply system, farm compound, transport and crushing of stone for road surfacing and construction of a horse stable. Construction of farm buildings to be done by contractors has not yet started but the preparations are near completion. Two temporary sheds for calves have been erected. The cattle crush in Gobe is in use but not fully completed. A small vaccination crush has been built in Dejo.

5. Resettlement of tenants
214 settlers have been selected and 103 are now being prepared for resettlement in cooperation with the Extension and education department.

6. The management of rented out land in Gobe and Asassa is progressing with less conflicts than earlier.

C. Divergence from work programme
a. The construction has been delayed by the slow processing of documents in the Ministry of Public Works.

b. The cattle purchasing has been kept back because of the outbreak of brucellosis & low fertility rate.

The delayed construction has caused higher operational costs and higher calf mortality. The delayed cattle purchasing will affect the herd expansion rate and thereby the future output.

D. Staff situation
The number of employees has now reached 120. A second assistant farm manager has been recruited.
4. EXTENSION AND EDUCATION

4.1 Agricultural extension

A. Planned activities

1. Demonstrations of wheat, barley, teff, maize, rape, flax, fodder beets, pea-oat, implements, vegetables, cattle management and hygiene, tree plantation, erosion control and drainage with model farmers.

2. Trials with different varieties of wheat, barley, maize, teff and flax.
   
   Trials with different seeding time for wheat and maize.
   Trials with different rates of fertilizer application on wheat, barley and rape.
   Trials of comparison of soil burning with fertilizer application.

3. Field days for farmers

4. Election/selection of model farmers

5. Advise on marketing and supervision of credit system

6. Assistance in distribution of seed and fertilizer and other farm supplies.

7. Survey activities

8. Supervision and training of model farmers

B. Achievements during the period

1. Demonstrations with the model farmers.
   See table 3.
<table>
<thead>
<tr>
<th>Extension area</th>
<th>Number of M.F.</th>
<th>LL</th>
<th>T</th>
<th>Demonstration with</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Wheat</td>
</tr>
<tr>
<td>Sire</td>
<td>5</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Huruta</td>
<td>16</td>
<td>16</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>Etaya</td>
<td>14</td>
<td>14</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Goide</td>
<td>12</td>
<td>12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>North Asella</td>
<td>14</td>
<td>10</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>South Asella</td>
<td>14</td>
<td>12</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Sagure</td>
<td>14</td>
<td>14</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>Digellu</td>
<td>12</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Lemu</td>
<td>7</td>
<td>7</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Bekoji</td>
<td>5</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Meraro</td>
<td>7</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Lole</td>
<td>7</td>
<td>7</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Kersa</td>
<td>5</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Total .....</td>
<td>132</td>
<td>123</td>
<td>9</td>
<td>132</td>
</tr>
</tbody>
</table>
In table 3 barley and teff are not included since no improved varieties have been available, but many farmers have been advised and have also applied fertilizer on these crops.

The divergence in the number of demonstrations in fodder beets, rape and pea-oats is because of lack of rain during the small rainy season for the fodder beets, bad germination in the rape in the beginning of the big rainy season and lack of oat seed.

 Implements distributed and demonstrated to the farmers are not as many as planned, because they were not ready at the time when it was suitable to demonstrate them.

 Vegetable growing, tree plantation and erosion control have also been demonstrated to many model farmers but it is not mentioned in the table since the number is unknown. Some demonstrations with sub-soil drainage are going to start in December.

2. One hundred and fifty-four trials have been laid out during the period, 68 with model farmers-mostly variety trials and 86 on the 13 demonstration fields. Up to now no results are ready since the harvesting has just started.

3. In every extension area many field days have been arranged. See table 4.

4. According to the plan, every extension agent should have 15 model farmers. In new areas, there should be only 5 in the first year. In areas where the number is still not reached, the election/selection continues.

5. The preparation of credit applications which will be the basis for 1971 year's credit, will start in December. During the period the extension agents have helped the Credit Section by reminding the farmers to effect their repayment from last year's credit.
Field days in different extension areas
8.7.70 - 15.11.70

Table 4

<table>
<thead>
<tr>
<th>Extension area</th>
<th>No. of field days</th>
<th>No. of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sire</td>
<td>2</td>
<td>375</td>
</tr>
<tr>
<td>Huruta</td>
<td>18</td>
<td>895</td>
</tr>
<tr>
<td>Etaya</td>
<td>6</td>
<td>330</td>
</tr>
<tr>
<td>Gonde</td>
<td>13</td>
<td>780</td>
</tr>
<tr>
<td>North Asella</td>
<td>20</td>
<td>260</td>
</tr>
<tr>
<td>South Asella</td>
<td>7</td>
<td>900</td>
</tr>
<tr>
<td>Sagure</td>
<td>3</td>
<td>1,300</td>
</tr>
<tr>
<td>Digellu</td>
<td>11</td>
<td>1,215</td>
</tr>
<tr>
<td>Lemu</td>
<td>11</td>
<td>380</td>
</tr>
<tr>
<td>Bekoji</td>
<td>4</td>
<td>180</td>
</tr>
<tr>
<td>Meraro</td>
<td>8</td>
<td>150</td>
</tr>
<tr>
<td>Lole</td>
<td>5</td>
<td>320</td>
</tr>
<tr>
<td>Kersa</td>
<td>7</td>
<td>185</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>115</strong></td>
<td><strong>7,270</strong></td>
</tr>
</tbody>
</table>
6. In the beginning of the period the agents also assisted in the distribution of seed and fertilizer.

7. Assistance in different survey activities has been given to other departments and sections in CADU.

8. The model farmers have been trained at the Training Centre and Demonstration Farm for one day. The extension agents gather their model farmers once a month in their different areas for training and discussion. Every model farmer has been closely supervised through frequent visits of extension agents and agricultural supervisors.

4.2 Co-operative Extension

A. Planned activities

1. Develop policy and management principles for multi-purpose co-operative societies.

2. Develop educational material

3. Promote the establishment of pre-primary co-operative societies in connection with existing trade centre.

4. Teach co-operative ideas and management to members and functionaries.

5. Arrange courses at the training centre in Asella.

B. Activities undertaken

Sixteen meetings have been arranged with the societies. The average number of participants has been 70. The bye-laws have been explained to all members, flanellograph material has been prepared, and the unit has been able to borrow material from the Ministry of National Community Development and UNESCO.

Election of 7 committee members has been arranged at Bilalo. A meeting hall and store is almost completed at Bilalo.

C. Divergence from work programme

The target to establish 5 co-operative societies during the period will not be fulfilled since the society at Bilalo should start its activities first so that experience could be obtained from the management there.
4.3 Women's Extension

A Planned activities

1. Develop course plans
2. Develop educational material
3. Train women's extension agents
4. Women's groups in rural areas
   a. Promote forming of women's groups in rural areas
   b. Teach and train in:
      i. CADU programme and particularly innovations disseminated by the agricultural extension unit.
      ii. The task of women in the production and marketing process (such as milking, feeding of animals, poultry, selling of produce).
      iii. The role of the wife in the family economy (promoting savings, planned investment and quality consciousness).
      iv. Vegetable growing, food preparing and nutrition.
      v. Health and sanitation

5. Supervise women's clubs in towns and villages.

6. Courses in the above subjects for instructors.
   a. From rural areas.
   b. From towns and villages.

B Activities undertaken

1. Course plans were prepared in all home economics subjects such as milk and milk hygiene, child care, home improvement, nutrition and food preparation and also for study methods, teaching methods and extension. For internal education a course plan for CADU cleaners is undertaken.

2. Educational material for each subject was prepared, e.g. plasters, flannel board with pictures, models and turnover boards.
3. A Women's Extension Agents Course was started at 31.8 for twelve students. The course will last for 6 months. In addition to the courses listed below practical field training information on CADU and on agricultural extension work have been given to the students.

**Health**

In co-operation with the Health Section, 28 hours health lessons have been added. The agents should be able to advise the women about health problems and should have some knowledge about different diseases. They should also be able to give first aid, advise about family planning and visit in the clinic.

**Literacy**

After discussions and co-operation with the WOALP representative in Asella, the addition of education to the Women's Extension Agents Course was suggested. The students have had two weeks training in literacy education.

**Milking**

The students have been studying milking three times a week to be able to teach and advise the women in proper milking.

**Riding**

Riding lessons are given as the agents will be getting a horse to be able to reach their groups and to transport educational materials.

**Practice**

From the middle of November, the students have had teacher training in the morning two days a week in seven women's groups.

4. Women's groups in rural areas

a. Women's groups have been started in Chaffa Bilalo and at the Project Centre, two groups in each place. In these groups the students have had teaching practice once a week and from 13.11 twice a week,
Information about the Women's Extension Unit has been given in several places in the project area to prepare the women to form more groups.

b. Gardening courses have been taught in six groups in the rural areas, nutrition lessons in Chaffa and hygiene lessons in the groups at the Project Centre.

Demonstration of vegetable dishes were given in 6 places, mostly in model farmers' houses.

c. Sanitation has started in Chaffa by digging latrines in 2 model farmers' compounds and health education has been given to the ladies and some treatment for eyes and wounds.

5. In Huruta, Asella and Sagure, the women's groups have had courses in clothes care, hygiene and gardening. Supervision has been given around once a month.

4.4 Agricultural school and staff training

A. Planned activities

1. Training of assistant extension agents, foremen for the Animal production and Commerce and Industry departments.

2. Training of co-operative organizers.

3. Staff training for extension agents and marketing foremen.

B. Activities undertaken

1. In the middle of July, one 14 months course for future assistant extension agents and co-operative organizers was started. Out of about 150 applicants mainly from Ras Darge School in Asella, grade 10, 11 and 12, 30 were selected for further test. After one month 25 students remained and they were offered contracts. The Ministry of Agriculture wanted to have some students trained for their purpose in the same course. Therefore, 6 additional students entered the course in the middle of August.
No more courses have been started, since accommodation and other facilities are fully utilized at the centre.

2. A one week in-service training course has been arranged for the extension agents and assistant extension agents combined with a study trip to Debre Zeit and Hollet.

<table>
<thead>
<tr>
<th>Number of groups, lessons, students and student hours</th>
<th>July – November 1970</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 groups in rural areas</td>
</tr>
<tr>
<td>Hygiene lessons</td>
<td>17</td>
</tr>
<tr>
<td>Clothes care lessons</td>
<td>23</td>
</tr>
<tr>
<td>Gardening</td>
<td>29</td>
</tr>
<tr>
<td>Literacy</td>
<td>24</td>
</tr>
<tr>
<td>Nutrition</td>
<td>20</td>
</tr>
<tr>
<td>Total no. of lessons</td>
<td>113</td>
</tr>
<tr>
<td>Total No. of students</td>
<td>186</td>
</tr>
<tr>
<td>Students' hours</td>
<td>1,466</td>
</tr>
</tbody>
</table>

4.5 Information

A. Planned activities

1. Plan and execute a continuous information programme on CADU activities and achievements for people in the project area.

2. Plan and execute information campaigns before launching new CADU activities in certain areas on request from other sections.

3. Plan and organize one week courses for newly employed CADU staff members.

4. Plan and disseminate information on new legislation and rights and obligations of farmers. Investigate possible obstacles to implementation of new legislation.

5. Prepare information material.
6. Transmit information on problems and opinions expressed by the public to the project direction.

7. Identify agents and places through which information can be channelled.

8. Take care of visitors.

B. **Activities undertaken**

1. Participated in field days arranged by the agricultural extension unit in different extension areas and disseminated general information about CADU's activities.

2. Carried out an investigation concerning the attitude of farmers towards CADU service and employees. Investigated the interest of farmers in artificial insemination and selling of cross-bred bulls.

   Disseminated information concerning cholera and water supply to the Asella towns people.

   Participated in the investigation of the resettlement programme at Asassa.

3. Two orientation courses were arranged for newly employed CADU staff members in the months of August and October.

4. Participated in a one week seminar held for Woreda Officials and other government officials arranged by the Awraja Governor.

5. A large number of visitors have been taken care of during the period.

**Staff situation in the department**

It has not been possible up to now to recruit an Assistant Head for the department, which sometimes affects the planning. For the Information Unit, one Legal Advisor has been recruited as a Head.

In the Women's Extension Unit, one Assistant Head has been recruited making the total of ML Ethiopian Staff three instead of the 2 planned for.

In the future, many new extension agents have to be recruited for the new areas. Many of the assistant extension agents who graduated from the agricultural school in March this year seem to perform well and are fit to be appointed as independent extension agents quite soon.
5. COMMERCE AND INDUSTRY

A. Planned activities

1. Purchase and sale of grain through the trade centres, 200 tons.

2. Purchase and sale of inputs
   a. Fertilizer NP 20/50 or equal 4,500 tons
   b. Seed from Kulumsa, Asassa and farmers, 3,000 tons
   c. Pesticides DDT 2,000 kg, MCPA 1,500 kg and thirampowder 200 kg.
   d. Implements such as hoes, spades, forks, scythes and wheelbarrows, about 25 of each item.
   e. Concentrate ingredients, together about 70 tons.

3. Purchase and sale of milk
   a. Milk from farmers through 9 centres, 220,000 litres
   b. Milk from the livestock farm, 18,000 litres
   c. Milk from the demonstration farm 2,000 litres
   d. Milk from the Sw. mission, 2,000 litres

4. Credit activities
   Supply of 3,000 tons of seed and 4,500 tons of fertilizer to 10,000 borrowers.

B. Activities undertaken

1. Purchase and sale of grain has just started and so far only around 40 q. have been purchased at an average price of $24:-/q.

2. Purchase and sale of inputs
   a. 5,200 tons of NP 18/46 are ordered.
   b. The harvest season has just started and only a few quintals have been brought from Kulumsa farm for cleaning. Around 1,000 q of Supremo and Romany at an average price of 25:-/q have been bought from farmers. 2,700 kg of hybrid maize and 300 kg of fodderbeet seed have been ordered.
c. 4,000 kg of MCPA and 800 kg of dichlorprop have been put to tender.

d. 70 hand operated sprayers and a tractor sprayer for weed control will be ordered.

e. Due to very high demand for concentrate the ingredients purchased have amounted to much higher than expected 130 tons.

3. Purchase and sale of milk

a. The number of milk collection centres is 7, one was opened in October and another two are to be opened before the end of the year. The collected amount of milk has only been 75,000 litres.

b. The livestock farm has delivered, 20,000 litres

c. The demonstration farm has delivered 3,600 litres

d. The Sw. mission has delivered 1,600 litres

4. The credit activities for next season have not started and so far there have only been discussions about how to revise and simplify the credit application and loan agreement forms.

C. Divergence from the work programme

Due to high demand among the farmers for herbicides and weed control service the amount of MCPA to be purchased has increased from 1,500 kg to 4,000 kg. For the same reason the amount of additional items for weed control has been estimated to:

Dichlorprop 800 kg, 70 hand operated sprayers and one tractor sprayer with 6 m. boom.
The demand for concentrate has increased more than estimated from farmers, the livestock farm, Gobe farm and Forestry department. From July up to and incl. November the amount sold will be around 100 tons instead of 70 tons estimated up to and including December.

The amount of milk purchased from the farmers has been much lower than estimated. Up to December 31 it will be around 85,000 litres instead of estimated 220,000 litres. The livestock farm will deliver around 24,000 litres instead of 18,000 litres. The demonstration farm will deliver around 4,000 litres instead of 2,000 litres and the Sw. mission around the estimated 2,000 litres.

The reasons for the decrease in the milk amount were stated in the Annual report, CADU publication No. 51 and are still valid. The need for assessing CADU's milk purchase and sales policy for the future must be given high priority.

D. **Adverse effects of divergence on the section**

The low milk amount collected will of course lead to increased loss due to the high transportation cost up to Addis Ababa.

E. **Staff situation**

The need of additional staff is evident. (Asst. Head of Department, Assistant Credit Manager, Assistant Marketing Supervisor, Bookkeeper and 12-15 additional trade centre foremen)
6. FORESTRY

6.1 Forestry extension

A. Planned activities

Information about better forestry practices, reforestation on private land as demonstration, erosion control experiments, better management of existing forest resources, training of staff, have continued.

Production target: 300,000 seedlings out to farmers and communities in 1971. Encourage people to produce seedlings on a bigger scale themselves. Continue investigations to find suitable tree species, cheap and effective planting methods for various types of soil and elevation.

B. Activities undertaken

During June/July 1970 demonstration plantations were established at Gonde Wolkesa, Asella, Woule, Bekoji, Meraro, Asassa and Gobe, altogether on 12.5 ha.

As a whole the plantations are very successful and better than what has been obtained in previous years.

The improvement has mainly been reached by careful soil preparation and the use of fertilizers. It has been found that most soils here contain so little phosphorus, that tree growth is very much delayed if fertilizer is not applied at the time of planting.

From observations on plantations of eucalypts established since 1967, it is now possible to quantify the economy of carefully established Eucalyptus plantations in the Asella area as follows.

Plantation cost $200 per ha. (1,600 seedlings).

After 4 years, 1,200 of the seedlings will reach a height of 15 - 16 meters and breast-height diameters of 15 cms. If the net value of one such tree is estimated at $0.50, the trees on one ha should after 4 years be worth $600.
As plantations ought to be established on steep slopes, with little or no agricultural value, so that land-rent can be excluded as an expense, it will appear that it is highly profitable to establish Eucalyptus plantations when they are well located in relation to markets.

In the field of erosion control, the trial and demonstration established at Wolkesa just North of Asella seem very promising. The method practised here could probably be applied on a vast scale for reclaiming badly eroded land in Ethiopia.

Trials have been continued to find suitable tree species for the region. So far the most valuable species for extension purposes seem to be:

- Eucalyptus saligna
- Eucalyptus deanii
- Eucalyptus dalrympleana
- Eucalyptus viminalis
- Eucalyptus bicostata
- Eucalyptus regnans

Many other Eucalyptus species are under observation.

For preparation of 300-400,000 seedlings for distribution to farmers in 1971, a big nursery has been opened at the Project Centre. Sowing was started in October.

Preparations are going on to switch from plastic pots to paper pots, and for the distribution of naked-root seedlings, a new chemical root-dipping compound will be used.

These two new methods should make it possible to achieve high survival percentages at much lower cost than by the use of plastic pots.

C. Divergence from work programme

It has so far been possible to follow the work programme without encountering any difficulties.

D. Staff situation

No change has taken place or is intended in the near future.
6.2 Government Land Reforestation

A. Summary of planned activities

Reforestation on government owned land, training of staff in the establishment and management of timber plantations.

Production targets; 350,000 seedlings to be produced and planted on government land in 1970/71. Clearing of 200 ha of forest land to prepare for this plantation. 30 ha have already been planted during the rains 1970.

B. Activities undertaken

Operations have so far advanced according to schedule. All felling of trees and bushes on the 200 ha, which are being prepared for planting in 1971, is expected to have been completed by the end of the year so that final clearing by burning will become possible before the onset of the short rains.

The output of timber from the felling site has been far above the first estimates. A volume of about 6,000 m$^3$ of Zigba logs is being offered for sale. Sowing has been started in the Dagaga nursery to prepare the seedlings for next year's plantation.

About 500 ha of government land have been identified in the Koke area of the Munessa forest, and it seems likely that 200 or 300 ha more will be located in the same vicinity.

No progress has been made in locating suitable reforestation areas between Shashamanne and Koffale, for continued reforestation by CADU.

In the rains 1970 about 30 ha were reforested on government land in the Dagaga area, mainly with Cupressus lusitanica and Pinus patula. Numerous trial plots with various interesting timber species were also established.
The most promising timber species for the area seem to be Cupressus lusitanica, Pinus patula, Pinus kesiya, Pinus oocarpa var. ochotenerai, Eucalyptus regnans and Eucalyptus grandis.

C. Divergence from work programme
There has been no divergence

D. Problems encountered
The Munessa forest administration is very strained since the section is still responsible for forestry protection. With one FHL and one EHL forest officer less than last year, it has been a very heavy burden for the remaining staff to keep activities running. Furthermore the transport situation has been most unsatisfactory. For a considerable part of the half year, the section has only had one vehicle at its disposal which is old and in poor condition.

E. Staff situation
One FHL and one EHL forestry officer who spent a considerable part of their time on forest protection have left without replacement. Until the section is relieved of its responsibility for forest protection in the Munessa area, it will be seriously understaffed.

6.3 Forestry Protection

A. Planned activities
Enforcement of the existing forest legislation within Chilalo Awraja. Control of the exploitation and transportation of wood products. Prevention of damage to existing forests. Ensure that exploited forests are replanted. Technical advice to forest owners.

Production targets: effective protection of remaining forests and participation of forest owners in the establishment of productive plantations wherever the natural forest has been exploited.
B. **Activities undertaken**

Reduction of staff and at the same time an increase both of forestry extension and reforestation activities have made it very difficult to look after forestry protection. The section has however kept supervision and control going in much the same way as in the previous year.

As concerns the principal aim of the operation, to conserve & improve the existing forests, probably very little, if anything at all, has been achieved. With the present system of forest land tenure and local legal procedures, anything better seems hardly possible, unless very heavy resources are allocated to forestry protection.

C. **Divergence from work programme**

The control has been inefficient and the effort futile. Given the circumstance nothing better can be expected.

D. **Adverse effects of divergence**

Staff and funds are to a considerable extent tied down by a completely unproductive activity.

It is harmful to the project that the section is engaged continuously in an unsuccessful and humiliating activity, so far as it is outside the powers of CADU to improve the system of forest management within the area.

E. **Problems encountered**

Apart from the problems mentioned above, activities have been hampered by shortage of supervisory staff and lack of transportation.
LIST OF CADU PUBLICATIONS

A. Project Preparation Period

1. Report No. I on the establishment of Regional Development project in Ethiopia, October, 1966
   Part I General Background
   Part II Project Outline
   Part III Appendices
   (A reprint of the Summary is also available)


3. Trials and Demonstration Plots at Kulumsa in 1966, July, 1966


5. Creation of a Forestry Administration in Arussi Province, March, 1967


8. Sagure, a Market Village, June, 1967


B. Implementation Period

1. Government Agreement on Plan of Operation

2. Some Reflections on Water Erosion in Chilalo Awraja, October, 1967

3. The Taungya Afforestation Method, November, 1967


8. CADU Pamphlet in English and Amharic

9. CADU plan of work and budget 1968/69 (with preliminary estimates for 1969/70)

10. Cultivation Practices and the Weed, Pest and Disease Situation in some parts of the Chilalo Awraja, March, 1968
11. Introductory Agro-Botanical Investigations in Grazed areas in the Chilalo Awraja, June, 1968
12. Results of Trials and Observations on Fields Forage Crops at the Kulumsa Farm and in Asella 1967/68, June, 1968
15. CADU Statistical Digest, May, 1968
17. Field Trials and Observations 1968/69
18. Feasibility study on a Farm for Breeding of Grade Cattle at Gobe, Arussi Province, September, 1968
22. A Case Study of Peasant Farming in Digelu and Yeloma Areas, Chilalo Awraja, Ethiopia, January, 1969
24. Results of Demonstrations 1968/69
25. CADU Plan of Work and Budget 1969/70
27. Feasibility Study on Sunflower Protein Concentrate and Fafa Mixing Plant, May, 1969
28. Results of Trials and Observations 1968/69
29. CADU Evaluation Studies, Health Education (Base-line study) May, 1969
31. CADU Evaluation Studies, Training of Model Farmers (Base-line Study) May, 1969
32. Progress Report No. 1, Implement Research Section, June, 1969
33. Feasibility Study on local roads and Market Places in Chilalo Awraja, by Lars Leanström, August, 1969
34. CADU Annual Report 1968/69
36. Census in Golja (Ketar Genet), by Gunnar Arhammar, March, 1969
37. Sanitary Survey in Golja (Ketar Genet), by Gunnar Arhammar, April, 1969
38. Kap Study of Mothers in Golja (Ketar Genet), by Gunnar Arhammar April, 1969
39. Food Survey of Pre-school Children in Golja (Ketar Genet) by Gunnar Arhammar, April, 1969.

40. Health Survey of Pre-school Children in Golja (Ketar Genet) by Gunnar Arhammar, April, 1969.


43. CADU Preliminary Final Report For the Period 1967 - 70.


47. CADU Work Programme and Budget for the Period 8.7.70 - 31.12.70.

48. Results of demonstration, 1969/70.


54. Report for the period 8.7.70 - 15.11.70.
Minor Research Tasks at CADU

1. Farm Management Studies of Model Farmers in the CADU Project area, by S. Bergholtz, July, 1969

2. The Munessa Forest, a Plant Ecological Study, by Lill & B. Lundgren, June, 1969


4. Local Varieties of Wheat in the Chilalo Awraja, by G. Widerstrom, November - December, 1968