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MUKONO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTRE (ARDC)



A Brief about the Farmers' Centre

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Introduction

Recent changes in government policy and strategy emphasized taking services to the people and increasing the participation of clients in efforts geared at improving their livelihoods. To do this clients need to be helped to have capacity to identify their problems, possible solutions and develop action plans to help themselves. They need to be empowered to try out new ideas and chose the best options to improve their farm productivity and income. In this context, NARO created the Outreach and Partnership Initiative to foster these ideals.

Mukono ARDC is one of the 11 Centres created by NARO to implement these ideals in different agro-ecological zones. The Centre is responsible for agricultural development in the Lake Victoria Crescent. It is charged with conducting adaptive research and technology dissemination in the 11 districts of the Zone. The overall objective of the research activities is to improve the livelihoods of the communities through introduction and use of improved agricultural technologies. The functions of the set up are to:

- Understand the farming systems of the Zone.
- Identify the research needs for the people.
- Source the technologies from NARO and other Research Institutes.
- Refine /adapt technologies to specific areas.
- Train farmers in group dynamics.
- Build capacity of farmers and other service providers in adaptive research and technology transfer.

Location

The Centre is located on Ntawo village in Mukono district, 20 km East of Kampala City centre. It is 2 km off the main road with 41 ha, of which 60% is arable land.

Management

The Centre Manager conducts the day-to-day management and general administration of the Centre. A Zonal Steering Committee that is made up of key stakeholders from the districts of the zone drives the programmes and activities of the Centre. The Committee has representatives of farmers, district local govts., NGOs, CBOs, NAADS, Private sector, DAOs and NAROSEC. This Committee is set to include agro-processors to facilitate in the identification of market opportunities for farmers' produce.



Members of the first Mukono ARDC Zonal Steering Committee after a business session in 2002

Staffing

There are eight graduate staff, i.e. crop scientists, a socio-scientist trainee, librarian/Information officer, a finance officer, and Centre Manager. The Centre also employs 11 support staff designated as technicians who specialized in water management, livestock production and mechanization.

In order to carry out its outreach functions the Centre largely depends on funds provided by NARO. For its day to day running it generates revenue from sell of agricultural produce and hosting of workshops, seminars and meetings.

Background to the Centre's Current Status

NARO effectively took-over the Centre on 3rd July 2000. Until then the Centre was called Mukono District Farm Institute (DFI). Soon after the Centre was taken over by NARO, need was felt to improve all facilities. Better beds, bedding and dinning chairs were purchased, houses and stores were repaired, dinning hall walls and roofs of buildings were painted, the compound that had been dug up during construction of new buildings underwent landscaping, parking yards and road were repaired and fencing of the Centre's perimeter was done.



Part of the centre's compound

Facilities

There are six dormitories that can accommodate up to 124 persons and four guest-rooms. Good housekeeping is provided. There is running water (hot and cold) and toilets in each dormitory. The Centre has a hall that can accommodate 120 people with services like public address system, video deck, television, overhead projector, screen and photocopier. Computer and/or secretarial services can be provided on request. Of the three small meeting rooms available one of them can accommodate 50 persons while the other two can accommodate 20 people each. Furniture is movable so that sitting can be arranged according to request. Balanced meals are served in two spacious and well-equipped dining rooms. The kitchen and the staff are capable of coping with large numbers of diners. Three stand-by generators are in place to provide power when an interruption in electricity supply occurs. The Centre is served by a public boda-boda transport system and has a public MTN telephone booth.



Secretarial services

On-station Activities

One-day training programmes are organized for farmer groups from mainly districts served by the Centre. However, visiting farmers have come from other districts of the country to learn about the developments taking place. Frequently students, school children and other interest groups come to study technologies being generated here.

Annual crops like maize, beans, cassava, sweet potatoes, yams, indigenous and exotic vegetables are established in plots and fields. Perennial crops like coffee, cocoa, bananas and fruit trees are also raised. Small plots are planted mainly for experimental purposes while larger fields are planted for demonstrating and teaching improved agronomic, irrigation and pests & disease management practices. Guided tours are usually arranged for the visitors to these plots. A Livestock unit is in place for piggery, poultry and dairy cattle rearing. The animals serve similar purposes like crops. Some of the demonstration plots and nurseries are used for multiplication of seeds and planting materials. This activity has been established to meet the demands by visiting farmers. Dwarf varieties of *Arabica* coffee are under evaluation for resistance to Coffee wilt disease. Mother gardens of local and exotic varieties of bananas, clonal coffee and cocoa have been established to produce foundation seed of planting material for farmers to innovate with in their farming systems.

Open and Field Days

These are regular features at the Centre and serve to train farmers and the general public about activities of the ARDC. The Centre has set up three demonstration sites at Busabaga and Butoolo, in Mukono and Mpigi districts, respectively. Local communities are responsible for ensuring the use of the demonstrations by farmers in the area.



Technicians of the Centre explaining modern agricultural production techniques to farmers during one of the field days at the Centre

The Centre assists in maintaining these sites.

Field days can also be arranged when the country hosts important national and international conferences on agriculture. For instance our partner Sasakawa Global 2000 organised a workshop on Africa's Food Security at the International Conference Centre (5-9 June 2001). The Centre was selected to host *a delegation of high profile dignitaries*. The Centre was visited by the delegation that included the former President of USA Jimmy Carter that was received by no other than Dr. Kisamba Mugerwa the Minister of Agriculture, Animal Industry and Fisheries and Prof. J. K. Mukiibi. Field Days are also organized when important people arrange visits to the Centre. Such visitors may be members of the Parliamentary Committee on agriculture, Chairman NARO Board etc.



Dr. Kisamba Mugerwa and Jimmy Carter on a Field Day at Mukono ARDC in June 2001

Fruit production and nursery management

Seedlings of mangoes, passion fruit, avocado, citrus (sweet orange), lime, lemon and tangerines are produced. The commonest method of propagation is by grafting and budding. Some of the advantages of grafting include reduced maturity period (5-10 years reduced to about 2) and tree size, providing disease free plants and multiplication of seedless fruit trees. At times more than one variety can be grafted on one rootstock, e.g. tangerines, oranges and lemon.



Relative sizes of citrus trees in production after grafting

Livestock reproduction and management

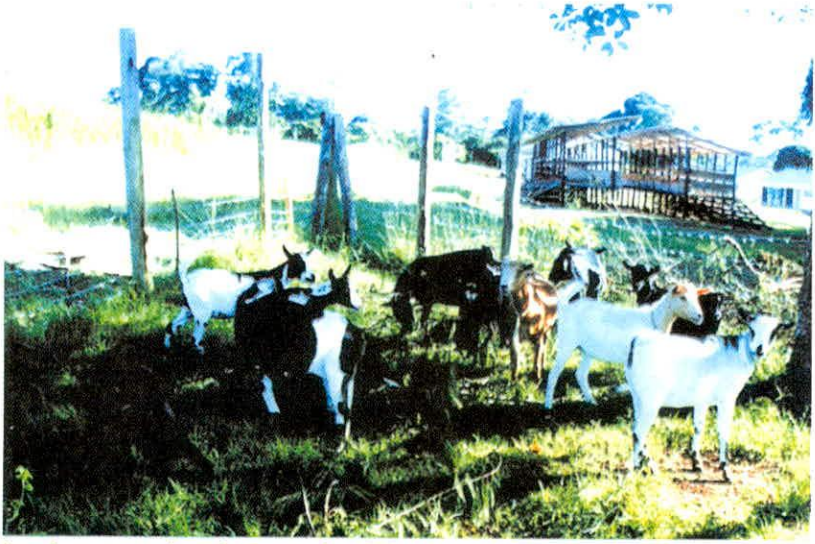
a) Piggery: The breeds maintained at the Centre are the Large White and Land Race. Piglets are availed to Farmer Groups to either start pig farming or upgrade existing local breeds. Since 2001 a total of 10 piglets have been placed in five Farmer Groups in Mukono Town Council. A farmer is identified by his/her group to receive a piglet on condition that it will be raised properly. After the first furrowing two female piglets are given back to the Centre for distribution to other members in the same group or other groups. Subsequent recipients are usually identified as soon as the group receives the first piglet. This ensures regular monitoring of how the first recipient looks after the piglet because of the vested interest. After giving back the two piglets the sow becomes fully owned by the original recipient. The Centre staff carries out documentation of the process of farmers integrating pig keeping into their farming system. Identification of researchable issues is carried out jointly by the farmers and researchers to promote pig rearing.

b) Poultry: Commercial layers and broilers are kept. The eggs and meat are sold to the public and the rest are supplied to the Centre's kitchen. A hatchery produces broiler chicks, which are sold to poultry farmers.

c) Dairy: This is to demonstrate semi-intensive dairy farming that combines zero and open grazing in paddocks. Milk and male calves are sold to the public.

d) Goats: A goat unit has been constructed in which improved milk and meat goat breeds are reared. Billy goats of the South Africa Boar breed have been introduced to improve local breeds.

e) Pasture: Pasture and fodder management is demonstrated to farmers. The land area under pasture is 1.7ha of which 0.9ha is under fodder plants. Pasture is mainly a mixture of grasses *(Chloris* and *Panicum* species) and legumes *(Centrosema* and Siratro species) while the fodder plants are Napier grass (elephant grass), Setaria, Calliandra and Russian Comfrey.



Local goats ready to be crossed with the South African Boer to improve quality

Stakeholder Participatory Planning Workshops

Planning workshops for feedback for action by the Centre or Research Institutes are held annually. Participants identify the zone's commodities and prioritize them. They also identify and prioritize constraints affecting each commodity and possible interventions. Stakeholders draw up workplans and identify key elements that require urgent attention. Coordination committees are usually constituted to implement whatever has been agreed upon during those workshops. The elected committees become responsible for monitoring and evaluating implementation of planned activities.

Training Programmes

The Centre organizes a number of training programmes for its clients, especially the farmers. There are four major types of trainings;

a)One-day farmer training. This kind of training is arranged with farmer groups, local leaders or extension agents. Normally the participants start with classroom work where basic practices of agricultural production are taught. Thereafter, farmers are taught the actual skills of production in the field. Unless specific areas of training are identified farmers usually find the time too short. In order to overcome this constraint this kind of training is currently tailored to specific areas of agriculture like pig rearing, poultry or fruit tree seedling production.

b)Short-term training (5-10 days). In partnership with different stakeholders short-term training is organized for groups of 20-40 people. The training curriculum is tailored to specific needs and involves both theory and practicals. As a rule participants are provided with certificates of attendance. After the training staff of the Centre usually make a follow-up to monitor how farmers/participants implement what has been learnt during the training.



Farmers display their certificates after training

c)Attachments of agricultural students (2-8 weeks). On request by heads of institutions students of agricultural colleges (5-10) usually come to the Centre to acquire practical skills in modern farming. Normally such associates are not charged fees but have to actively participate in the day today management of the units where they are attached. Occasionally responsible citizens may recommend individual people to the Centre for the above kind of on-job training. Recommendation is a pre-requisite to check against fraudsters.



Centre staff on follow up visit to one of the trained farmers' garden

d)One-day farmers/school children training (field visit). The Centre is one of the most accessible agricultural institutions in central Uganda. This makes it one of the most sought after destinations for school



School children of Zana Junior Boarding School on a visit to the Livestock Unit

field visits. Its well laid-out field and experimental plots, including livestock, make it one stop centre for an overview on agricultural production in the region. One-day field visits do not require elaborate booking procedures as the Centre is always ready to show what it can offer any time.

Research Projects Initiated

Participatory community based research projects have been initiated. Farmers, local leaders, NGOs and scientists together participate in assessing the needs and opportunities for the village. Farmers set priorities and together with scientists and other stakeholders identify potential interventions. This approach ensures mutual learning; scientists and farmers learning from each other.

The banana rehabilitation project

This project was initiated in Mukono district, in the sub-counties of Kawolo, Goma, Wakisi and Najjembe during 2000. The following activities were carried out:

- Sensitized the farming communities on banana technology transfer.
- Advocated for and encouraged community based farmer group formation and strengthened existing ones.
- Provided advice on banana production and identified integrated pest management strategies for farmers to practice with and learn banana weevil control.
- Study tours were facilitated to other districts (Bushenyi and Mbarara) to share experiences and gain new knowledge on banana production.
- Agricultural extension staff and CBOs of the areas actively participated in the project to ensure continuity of the practices learnt.

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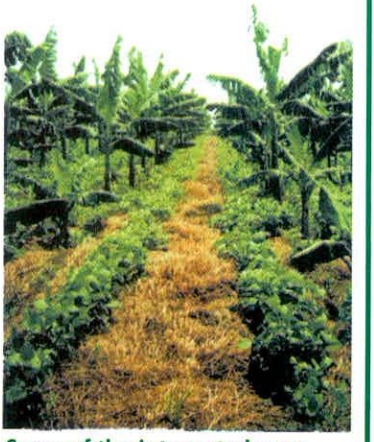
WB official and Dr. Otim Nape, in charge NARO Outreach inspect the Banana Project in Busabaga Parish

Integrated Crop Management (ICM) project.



Some of the integrated crop management practices in bean/ banana production systems.

Integrated crop management is the management of the interactions among soils, plants, water, forests and animals for agricultural production. It is a holistic approach to sustainable farming that focuses on the knowledge and expertise of the farmer. It involves complimentary farming practices that improve productivity without compromising sustainability of the natural resource base. This project was initiated in August 2001 and is conducted in Kayonza and Wakisi sub-counties of Kayunga and Mukono districts, respectively. The main aspect of the project is to identify and promote farmers' ICM practices.

One of the objectives of the project is to encourage farmers' innovativeness on emerging and existing technologies. In order to stimulate this and evaluate farmers' innovativeness, contests are organized among individual farmers and also among farmer groups. At times improved varieties of maize, finger millet, beans, groundnuts, bananas, cassava, and sweet potatoes are distributed to farmer groups to enhance the basis for farmer performance evaluation. Contests have been held in Namaliri and Naminya parishes of Kayunga and Mukono districts, respectively.

Similar contests are planned in all the areas where the Centre is operating. It has been observed that contests have a positive effect on farmer performance as it creates a spirit of competitiveness. Such contests are useful, especially when a clear theme is provided to farmers long before the contests are conducted. For the year 2003 contests are organized with a theme titled "*Farmers Innovations for Managing Soil and Water for Sustainable Agriculture*".

Farming and livelihood systems analysis

Understanding farming and livelihood systems is crucial to the development of technologies that impact on communities. The Centre has, therefore, initiated studies in Mukono, Kayunga, Mubende, Masaka, Wakiso and Mpigi districts. Study visits have been made and study sites (villages) have been selected and potential partners identified among Farmers Groups, NGOs, District Extension staff and CBOs. During the visits, scientists with farmers and other stakeholders carry out needs assessment of the villages and identify potential solutions to priority constraints. Farming and livelihood system analysis surveys have been carried out in the districts of Kiboga, Mubende, Nakasongola and Luwero.

Farmer-Research Group Institutional Capacity Building.

NARO's strategy for adaptive research and technology dissemination programme is to operate through Farmers Research Groups (FRGs). Five-day training workshops are conducted for farmers and agricultural extension staff in the districts where the ARDC conducts research. The objectives of the workshops are to equip farmers with knowledge for purposes of:

- forming strong groups with active membership that participate fully in adaptive research programmes,
- learning more about group dynamics
- forming effectively managed groups that function as a business,
- improving the overall functioning of the groups through the use of constitution,
- increasing sense of ownership and responsibility in the groups.

Already seven training workshops have been organized in the districts of Kayunga, Mukono, Wakiso, Mubende, Mpigi and Masaka. Similar training will be organized for selected farmer groups in the remaining districts of the zone.

Table 1. Some of the Farmer Groups that the Centre has initiated activities with to improve livelihoods in the different districts.

District	Group Name	Location	No. of farmers	
			F	M
Mukono	1. Nakibole Farmers' Group	Kawolo Sub-county	7	5
	2. Nakusubyaki Mixed Group	Kawolo Sub-county	6	15
	3. Kigunga women's Group	Goma Sub-county	7	0
	3. Nsambwe Farmers' Group	Goma Sub-county	10	6
	5. Okwegatta Gamannyi Ntawo Group	Mukono Town council	10	5
	6. Ggulu "A" Women's Development Group	Mukono Town council		
	7. Bugujju Farmers'	Mukono Town council	5	8
	8. Ddandira Farmers' Group	Mukono Town council	19	5
	9. Akwata Empola Farmers' Group	Kira	13	6
	10. Linda Kigweyo Farmers' Group	Central Naminya	11	6
	11. Zibula atudde Farmers' Group	Bujjowali		
	12. Kyosimba Onanya Farmers' Group	Naluwerere	14	9
	13. Biva muntuyo Farmers' Group	Naluwerere	10	6
	14. Naminya Youth Group	Naminya		
	15. Balyejjusa Bujjowali Association	Bujjowali	9	5
	16. Muyenga Farmers' Group	Muyenga	12	6
	17. Ddembe Development Association	Bujjowali	8	5
	18. Tweyambe Farmers' Group	Bujjowali	8	4

District	Group Name	Location	No. of farmers	
			F	M
Kayunga	1. Balyejjusa Womens' Group	Lugasa East	13	3
	2. Munaku Kaama Youth Farmers	Lugasa East		9
	3. Basoka Kwavula Farmers' Group	Kayonza	7	10
	4. Kyosimba onanya Farmers' Group	Nakabango	6	4
	5. Akata empola fisheries group	Nakabango	9	6
	6. Nakabango Farmers' Group	Nakabango	7	11
	7. Anonya alaba mixed Farmers' Group	Namaliri	4	9
	8. Tukolere Wamu Farmers' Group	Kyato 1	8	4
	9. Zibula attude Farmers' Group	Kyato 1	6	5
	10. Akwata Empola Farmers' Group	Kawolokota West	5	9
Mubende	1. Nkobaambogo Farmer's Group	Namukomago LC 1	8	7
	2. Bivamuntunyo Farmer's Group	Luyege LC 1	7	9
	3. Bwavu Mpolongoma Farmers' group	Bulyankuyenge LC 1	17	12
	4. Kwagalana Farmers' Group	Butenga and kyetume	3	11
	5. Kwagalana Farmers' group	Vunamba LC 1	10	17

District	Group Name	Location	No. of farmers	
			F	M
Masaka	1. Budda Women's Group	Budda village	25	-
	2. Twesinga Mukama Budda Farmers' Group	Budda village	15	15
	3. Budda Farmers' Group	Budda village		
Wakiso	1. Gutali Mutume Farmers' Group	Kona West	10	8
	2. Bulamu Women's Group	Kona West	15	3
	3. Kiyembe Farmers' Group	Kona West	3	7
	4. Ogutateganya Dev't Association	Kona West	8	4
	5. Gwosusa Emwanyi	Kona west	13	2
Mpigi	1. Butoolo Disabled Farmers' Group	Butoolo village	10	13
	2. Balikyebuza Dera Farmers' Group	Dera village	3	9

Partnerships

The Centre realises that it can not bring about change in the livelihoods of the people single-handedly. Great importance is attached to building functional and sustainable partnerships that can contribute to improving the welfare of the farming communities. In July 2002 the Centre organised one of a series of partnership workshops for NGOs, Local Govt., Researchers and Farmer Groups operating in the districts of Kayunga, Mpigi, Mukono, Mubende, Masaka and Wakiso. The theme of the workshop was *Collaboration for Revitalizing Smallholder Managed Agroecosystems*. The objectives of the workshop were:

- Reach/agree on a common understanding of what is involved in agro-ecosystem revitalization as a strategy for enhancing livelihoods in smallholder farming villages.
- Assess a common interest among potential partners and willingness among them to commit to a joint research- action effort.
- Identify complementary expertise among committed partners so that clear roles can be established to enhance impact of activities and avoid duplication of effort.

At the end of the workshop members agreed on the following concepts needed to ensure sustainable linkages among potential partners.

- A need to form a forum of partners.
- Farmer is the focal point.
- The expertise of the actor and that of the external player.
- Extension workers are closest to the farmer.

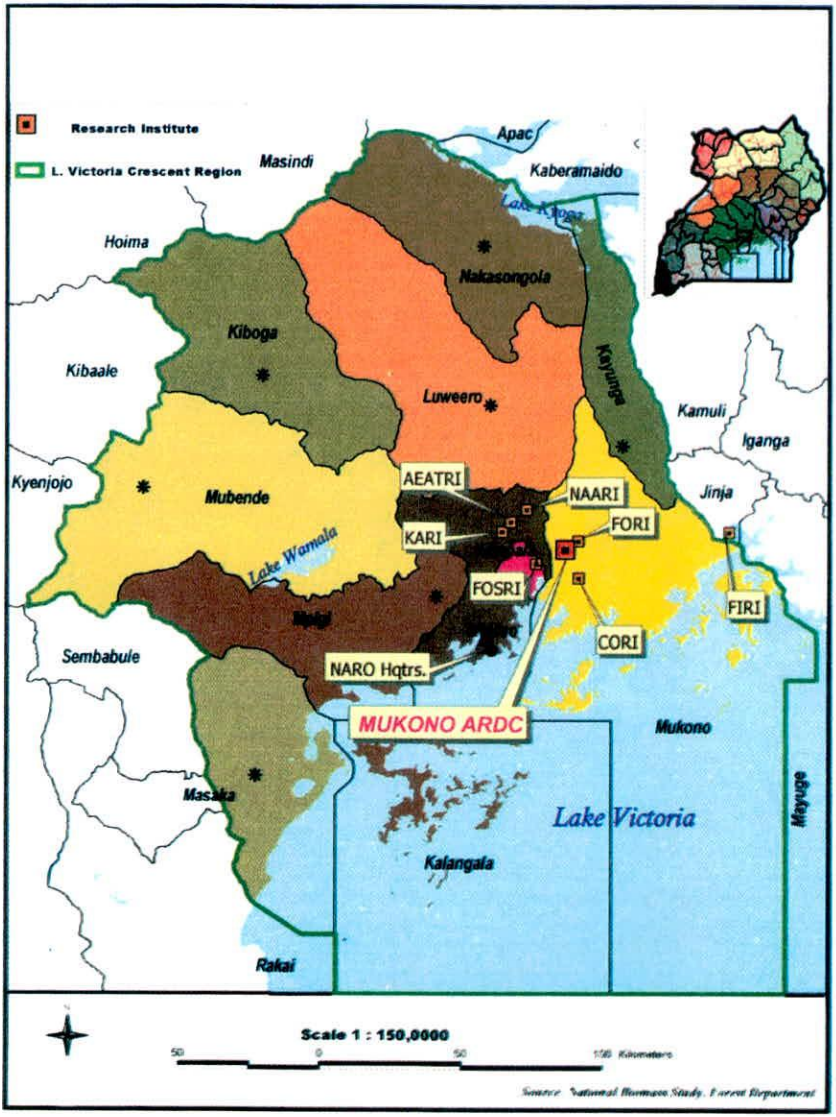
At the end of the workshop a committee was formed and named *Partnership for Central Agroecosystem Research and Development*.

It is meant to oversee what was planned. Another one-day partnership workshop was organized 28th February 2003. In this meeting clear roles of partners were defined in relation to the materials that were to be availed to the Farmer Research Groups that had just been trained in group dynamics.

The Future

The technology needs of the farmers are diverse, location specific and ever changing. Availability of technologies *per se* will not improve the livelihoods of the rural poor. Farmers need technologies that will help them produce the right items for the right markets. In partnership with the Department of Agricultural Economics and Agribusiness, Makerere University, the Centre is to set up a Socio-economic lab where data on cost/benefit analysis of different agricultural enterprises will be stored and made readily available to farmers. This will help them make informed decisions on the kind of agricultural enterprises to take on in order to make profit out of farming. The Centre will go into all possible strategic partnerships with development agencies in order to impact on the livelihoods of the farmers in the zone.

Mukono Agricultural Research and Development Centre (ARDC)-Lake Victoria Crescent Agro-ecological Zone



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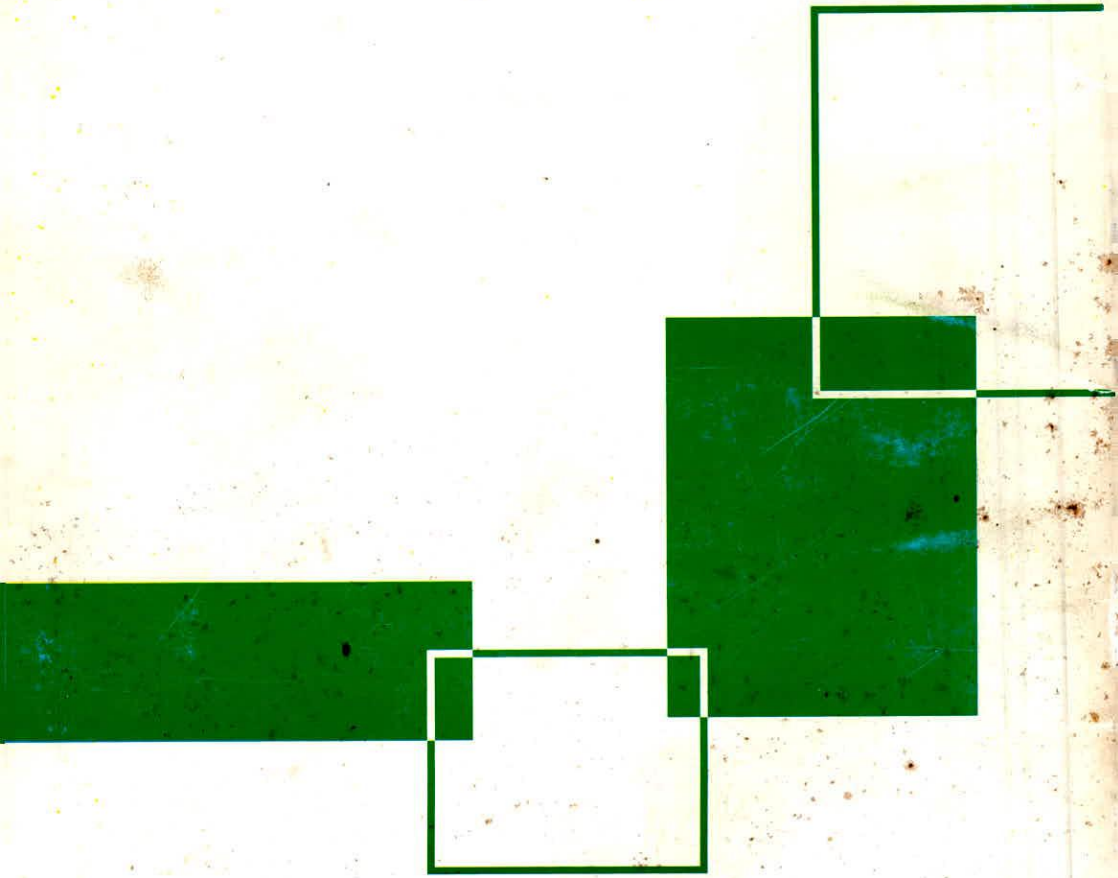

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