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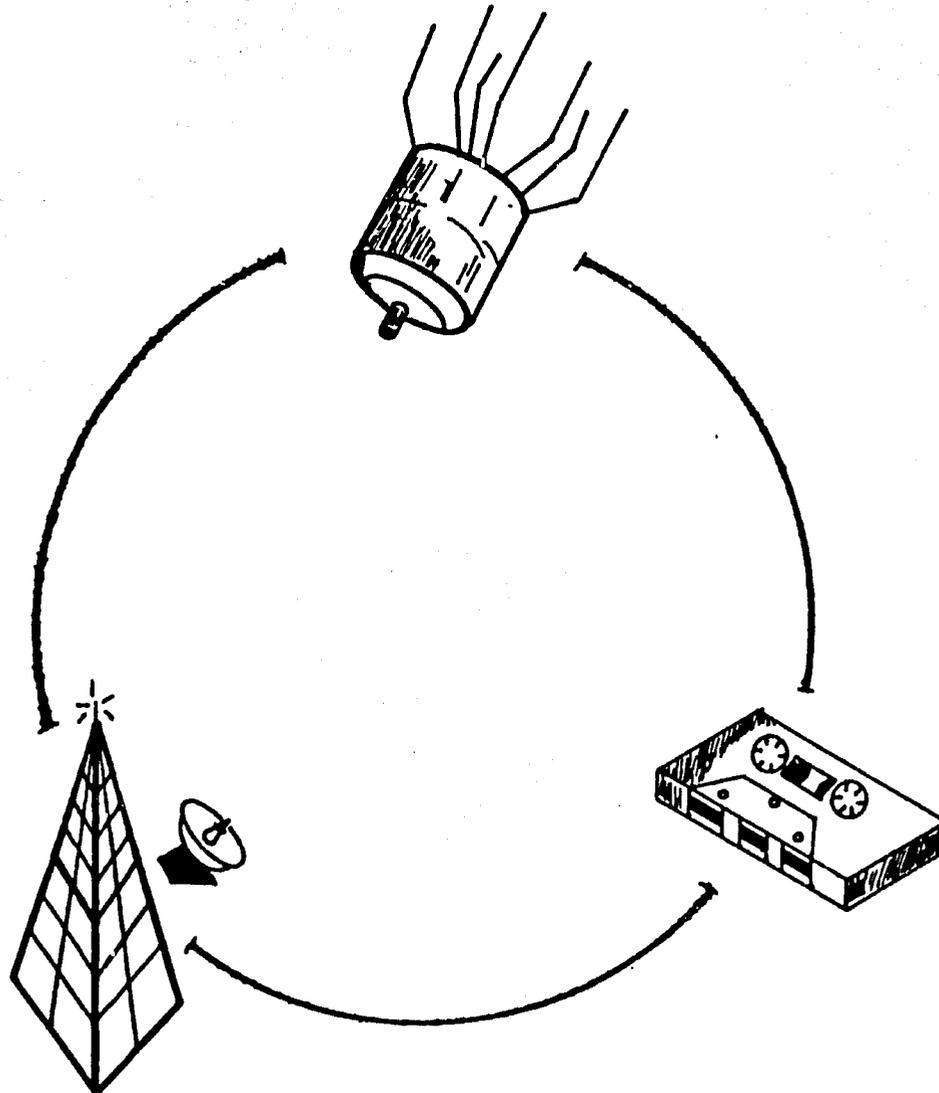
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ACADEMY FOR EDUCATIONAL DEVELOPMENT

# Model Communication System For Improving Rural Education in Indonesia

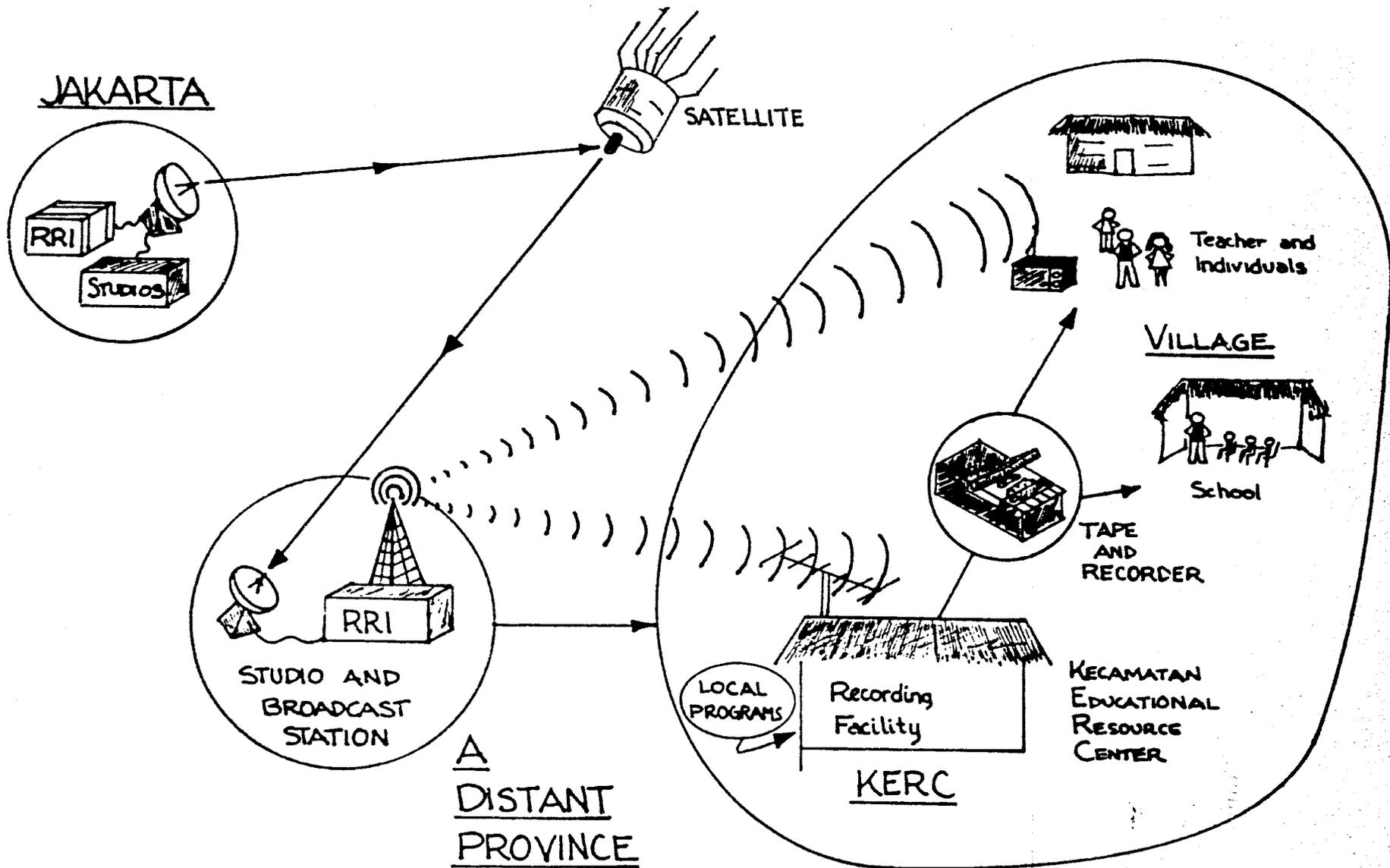


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**MASTER**

# MODEL COMMUNICATION SYSTEM FOR IMPROVING RURAL EDUCATION IN INDONESIA



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## Acknowledgements

The temptation is great in many parts of the world to launch extraordinary, sophisticated, technologically-based projects to meet the tremendous needs in education, food production, population, health and social welfare, and other aspects of social and economic welfare. However, the history of development efforts has seen too many cases of such "big" projects whose impact barely survived the initial flash of publicity.

We have resisted the temptation to be "spectacular." In designing the Model Educational Communication System (MECS) we have tried to create a program -- not simply hardware -- which would have early impact. But equally important the MECS would have implications for a long-run rural development effort emphasizing communication at the village level. We have tried to build on past accomplishments, and weave new technology and innovative techniques into a system that can be adapted to the diverse conditions that characterize Indonesian rural life.

In this Report we deal with some of the principal concerns of many of the Indonesian officials with whom we talked. Textbook use, teacher training, satellite communication, non-formal education, radio, audio cassette technology -- these are a few of the various issues. Our team wishes to acknowledge the considerable help and insights that came from our Indonesian friends and others who helped inspire this plan. In a very real way it is their Report as well as ours.

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Dr. Alvin Miller, leader  
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For the USAID Team  
May 1976

**A MODEL COMMUNICATION SYSTEM  
for Improving Rural Education in Indonesia**

The introduction of a communication satellite into Indonesia's national life has provided hope of reaching many of the nation's culturally and geographically isolated people who have not had many of the benefits enjoyed by many other Indonesian citizens.

The availability of satellite communication serves also as a reminder that other electronic media are being used to provide important communication services for rural development. For example, in various parts of Indonesia radio and audio cassettes are being used in educational programs for rural people.

This report deals especially with ways these media can be used to meet what has already been defined as a critical national need: improving the educational opportunities of people living in rural sectors of the country. It deals with the immediate future, and presents a program that the Department of Education and Culture can implement within the philosophical and policy guidelines of Repelita II.

The educational technologies and the system proposed here for using them represent an innovative approach to rural education. It is called a model educational communication system. Yet there has been enough experience with most of the "pieces" of the system either in Indonesia or elsewhere to have confidence in the model being proposed. In fact, some pieces build on experience and projects already nurtured by the Department of Education and Culture.

In this report, the project recommended involves integrating satellite communication, radio broadcasting, and audio cassette technology into a system which can swiftly provide Indonesian villages in the farthest provinces the latest in educational information and assistance from national and provincial centers, yet a system which can provide village teachers opportunities to use local resources effectively to pattern learning to the cultural conditions of the community.

While it is a system which can move educational material rapidly from senders to receivers, it is also a system which will enable a teacher or student the opportunity to receive information and training at a pace and in a form most appropriate to their various learning circumstances.

The report recommends establishment of the system in a minimum of three provinces on a demonstration basis. But it is important to stress that the system is easily expandable. And affordable. The Government of Indonesia could continuously add more provinces to the system without straining its own resources. No constant outside funds would be likely to be needed to sustain the system.

Television eventually will be a powerful force for rural development. While this report does not include television as a central component of the educational communication system for rural Indonesia, it provides a model for later integration of television as part of an overall modern system for providing educational opportunities throughout the nation. At the same time, it provides a framework for including other media into the system, such as film and printed materials.

Background to the report

To provide a perspective on the process which led to the conclusions of this report, two short explanatory sections follow.

Data gathering. The USAID team was fortunate in having access to a wide range of resources related both to educational technology in Indonesia and to the status of education in rural areas. These included conferences with Government of Indonesia officials in BAPPENAS, Education and Culture, Communication, and Broadcasting; and meetings with representatives of international agencies such as UNICEF, the World Bank and UNESCO, and an array of other helpful and concerned agencies such as the Ford Foundation, USAID mission people, INNOTECH, independent production agencies such as Sanggar Prathivi Production, Hughes Aircraft Corporation, college officials, and teachers, students and families living in the rural areas.

The team spent productive sessions in Jakarta, but also traveled to Central Java to see and talk with persons directly involved in programs in rural areas using educational technology. An especially valuable field trip was made to the interior of W. Kalimantan to see first hand some of the challenges facing TKPK and the Ministry of Education and Culture, and to visit rural schools and talk with teachers and students there.

The AID team's resources also included a plentiful and helpful array of documents from many of the organizations indicated above.

Guidelines for the report. The data gathered during the visit in Indonesia and the charge made to the team as it began its work helped provide guidelines for the development of the report and its recommendations.

These included:

- 1) A major emphasis should be on upgrading teacher competence in rural areas.
- 2) A project should support explicit elements of Repelita II (1974-78).
- 3) A project should be consistent with BAPPENAS' interpretation of those Repelita II elements. This ruled out any extensive development of television facilities.
- 4) A project should produce measurable results soon so they might guide the drafting of educational technological provisions for Repelita III.
- 5) A project should be innovative, not for the sake of innovation alone, but to provide fresh approaches to the nation's rural education problems.
- 6) A project should provide an opportunity to test the role Indonesia's communication satellite might play in rural education.
- 7) A project should complement other education-related projects being planned by the Government.
- 8) A project should, however, be able to stand by itself and not be contingent on projects being planned by other agencies.
- 9) Recommendations might be for a demonstration project covering part of the rural population but it should be generalizable to other rural areas in Indonesia as well.
- 10) The project should focus on educational development at the village level where the ultimate target of the educational program would be.
- 11) The project should provide an opportunity for developing materials patterned to the local cultures and local conditions.
- 12) A project should be consistent with key interests of USAID. The team interpreted these to include non-formal education for rural populations.
- 13) A project should be manageable with a U.S. loan of about \$800,000 plus GOI counterpart funds.

Approaches to the rural education problem.

Geographic and economic considerations indicated quite strongly that the most appropriate medium for a model educational communication system initially should be based on aural communication. Much research also indicates that people can learn from audio messages. It is also conventional knowledge that many rural societies tend to have stronger oral/listening traditions than print or visual.

Following are some of the approaches specifically related to educational technology for improving rural education which emerged from the information gathered by the AID team.

One approach is to provide more extensive in-service training for village elementary school teachers. This includes providing training directly to the teacher during hours when the teacher is not in the classroom. The AID team visited a project in Samarang and another in Bandung where radio broadcasting was being used for this purpose.

Another approach is to provide information and lessons directly to students via educational technology. While students learn from experts, teachers can benefit in two ways: first, they (along with the students) can learn what may be new classroom material; and by studying methods used by those presenting the material, they can learn new teaching techniques.

A third approach is to involve parents in the educational process. The AID team assumed that the school-drop out problem, which wastes valuable resources in several ways, is more a "parent" problem than a student problem. Parents who do not know and/or do not understand the

school program may decide that working in fields or tapping rubber trees is a more valuable use of daytime hours than school. Thus communicating with parents of school children was considered by the AID team as a vital part of the over-all process of up-grading rural education.

A final aspect of rural education involves providing families with information to help them cope better with their environments and perhaps improve their environments. For example, the USAID team reasoned that the health and nutritional status of school children influences their attendance at school and their ability to function effectively while in school. Furthermore, the overall character of the community may be influenced by the opportunities its citizens, including the young out-of-school youths, have to learn skills and to acquire attitudes through non-formal education (NFE).

After studying information from its many resources, the AID team concluded that an educational technology system should try to deal with all of these approaches, in an integrated way, although administratively the responsibilities may lie in several different Departments or Directorates of the Government.

#### Components of the Model Educational Communication System: An Overview

Using radio. Radio has been used around the world in various educational applications. Because radio can hurdle geographic barriers, it can be used to communicate regularly with teachers to give them helpful information on educational matters on a regular basis. Radio is especially helpful in conveying timely information uniformly to teachers widely dispersed in a province or Kabupaten, and to provide some NFE to rural communities.

Using audio cassettes technology (ACT). Audio cassettes are being used in rural development throughout the world. In Indonesia, too, it is possible to find cassettes being used to communicate with rural people. Among the characteristics of cassettes which make them appropriate for the Model Educational Communication System include:

1. Timing. A cassette can be used when the user is ready and when other associated materials are available. For example, schools in Kecamatan Sei Ambawang all seem to operate on different schedules. Trying to schedule a broadcast for in-school consumption that would be suitable to all of them would be impossible. Also, a cassette can be used to explain new textbooks or other materials when they are actually available. Cassettes can also be scheduled around other community events which may be unknown to a radio station, or even if known, it would be difficult to adjust for individual communities.
2. Flexibility. A cassette message can be made as long or as short as the message demands. On radio, the message must usually fit the station's scheduling system.
3. Repetition. Users of cassettes can play back a recording as many times as they wish. This tends to be one of the great advantages mentioned by agencies which use cassettes in education/information programs. Radio cannot usually provide the same opportunity for a person to hear a second or third time material not clearly understood the first time. With ACT, amount of repetition is relatively unlimited.
4. Localized. Content can be patterned to the local community. Within one kecamatan, the AID team found what appeared to be a strongly religious community and one whose people migrated from Java; another seemed less religious and more "indigenous." It is relatively easy to meet what are likely to be differing needs of the teachers, students, and adults in these communities by tailoring cassettes to these local conditions.
5. Participation. Cassette technology offers the opportunity to use material produced by the consumers, i.e., by the villagers themselves. This may be cultural and educational material which can be shared internally and with other villages.

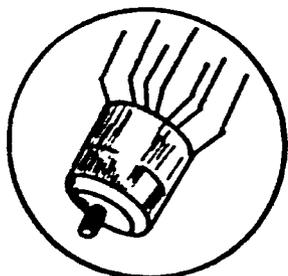
6. Lack of pressure. The audio cassette technology component avoids the problem of having to constantly produce material to satisfy the voracious appetite of a radio series. Writers and producers can take time to develop good materials rather than to have to meet difficult deadlines simply in order to have something ready for broadcast.
7. Purposeful. This is similar to the item above (#6) but applies to the consumer end of the system. Listening to a regular radio broadcast may have an advantage in building a habit; however, it may also become routine and uninspiring. Building an activity around a deliberately selected cassette program makes the exposure a purposeful event.
8. Simplicity. Anyone can operate a cassette tape machine with 5 minutes instruction or less.
9. Durability. The tape cassette itself and the tape machine are relatively durable because most moving parts are concealed.
10. Transportability. The machines are small and light weight. This, of course, could present a problem in trying to prevent stealing. The norms concerning stealing of community property vary from place to place and distribution would have to be adapted to local custom. General experience with the use of audio cassette technology in rural areas suggests that there is usually more difficulty in keeping track of the equipment in the offices of the agency than in the rural communities. Damage and carelessness with equipment also seems to be higher in the agency than in the rural community.
11. Retention. Cassette content can be protected against erasure by removing a small "tab" on the back of the cassette--a very simple operation. The cassette can no longer be used for recording, but can continue to be played back.
12. Availability. Cassette technology is widely available in Indonesia. Most of the school children the AID team talked with knew what cassettes were, and one can find cassettes on sale commercially from Pasar Baru to Kuta Beach, Bali. Indeed, they are being used by "catechists" in villages on Java, and probably elsewhere. Music cassettes are more available in Indonesia than are phonograph records.

The center of the audio cassette communication component should be at the Kecamatan level, in a Kecamatan Educational Resource Center (KERC). This is described in greater detail below.

The communication satellite. Indonesia's new communication satellite will have at least one ground station in each province. With the satellite and ground stations educational material eventually can be diffused throughout the whole nation simultaneously. This can include content developed by experts in education, agriculture, health, nutrition or any agency offering NFE for rural people. The "final" link to the rural population can be either through radio broadcasting or through the KERCs. (It should be emphasized that this Model Educational Communication System proposed in this report does not initially include all provinces.)

The diagram on the following page summarizes the components and their uses in the MECS.

# COMPONENTS IN MODEL EDUCATIONAL COMMUNICATION SYSTEM



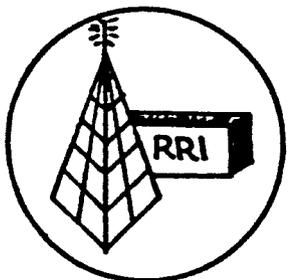
SATELLITE

## SERVICES

Relay of audio programs and messages

## COMMENTS

Swift diffusion to remote provinces Intermittent, "on-demand" use Fore-runner to model for television in education.



RADIO

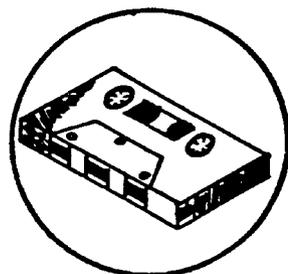
Broadcast programs to teachers out of school

During non-broadcast hours, relay content to KERC from national province and kabupater sources.

Weekly broadcast content:

- educational techniques and philosophy
- enrichment programs
- news of educational developments
- promotion of use of KERC materials

Material to be recorded at KERC for use as needed by teachers and other villagers.



KERC

Resource center from which village teachers and officials can draw programs for use when they are most appropriate.

Content especially designed for

- upgrading instruction by teaching teachers.
- supporting teachers in classroom (e.g. Bahasa Indonesian lessons)
- coordination with other materials (e.g. textbooks)
- repetition and thoughtful attention (e.g. math)
- localizing curriculum (e.g. material from local people for social studies)
- NFE, (e.g. to health, nutrition, agriculture, etc.)

The Model Educational Communication System in Action

Each of the key components of the MECS has a specific role to play. For example, radio is most suitable for conveying: (a) information that is uniformly applicable over a wide geographic area; (b) information that is relatively easy to assimilate when heard only one time, (c) information that does not have to be coordinated with other materials, or with time schedules of schools; and (d) information that can be understood by a teacher (and village) population characterized by a wide range of intellectual capabilities.

The KERC component, based initially on audio cassette technology, is most suitable for providing teachers and other listeners with: (a) material which may require more careful and concentrated listening; (b) material which involves written exercises, or note-taking; (c) material which includes "drill" or repetitious exercises, (d) material which may require pacing according to an individual listener's ability; (e) material that is coordinated with books or other materials; (f) and material that is patterned to local conditions.

The satellite's role is that of rapid distribution of timely materials.

Following is a more detailed description of how the system would work.

The KERC (Kecamatan Educational Resource Center) is designed to provide villages with access to simple communication technology and educational software. Located at the kecamatan governmental level, a KERC is initially committed to making available (a) a wide range of audio materials, particularly in audio cassette format, and (b) the

equipment necessary to use those materials in the village.

Depending on the needs and financial support available, a KERC at some point could also employ other media, such as film, slides or portable television.

This system is being recommended as a means for serving both formal education (teachers and students in the school system) and the needs of non-formal education (NFE). In primary level education it emphasizes teacher training, but in some cases this may also involve direct teaching of students via this audio cassette technology (ACT). Because this project focuses on the village level consumer, the clear organizational distinctions that may exist at the national or provincial level between teacher training, direct teaching via technology and NFE become considerably blurred.

KERC is more than a "cassette library." It is a system which involves a production and distribution strategy. At the village level, it consists of educational and other local agencies borrowing cassette units and tapes from the kecamatan office for use in the villages. It also involves teachers, students, villagers' and various specialists participating in the creation of some of the software on a continuing basis. However the principal content will come from education agencies and other government departments outside the village.

Examples of KERC in Action: teacher training

Teachers need help in "teaching methods," in working with new textbooks, in teaching such subjects as math, Bahasa Indonesia, and social studies. In some cases not all teachers need all of this help. In others, they may not all need it at the same time. Look first at the textbook situation.

Textbooks will never be uniformly distributed such that, at one point in time, a radio broadcast (or series) can be transmitted to show teachers how to use those textbooks, when the teachers need that instruction. For some, the broadcast would come before they had the books in their possession; for others, the broadcast may come long after they have had the textbooks. (The same type of situation might exist when other materials are being nationally distributed.) However the KERC can provide the flexibility that is needed. When the textbooks do reach a kecamatan, motivational and instructional material can be provided through the KERC on a cassette. A teacher can borrow the tape and listen to it as many times as he (she) needs to learn how to use the new textbooks. In short, the audio assistance can be delivered at the time when the message is needed--when the books are in hand, not months or weeks before or after.

Also, an alert provincial education officer could also describe on the cassette ways a teacher can make the textbooks "localized" -- and the province or kabupaten education office could provide audio materials which could be used with the textbooks to make them meaningful in the local context.

Social studies. One of the goals expressed frequently in GOI documents is the need to make education meaningful, to localize it, to make it relevant. A tape might be available in the KERC which illustrates for a teacher how to use local resources in teaching social studies. Because this tape is produced at the province or kabupaten level (with the possibility of inserts from the kecamatan level), it can deal with specific examples of approaches a teacher can use to make social studies more lively and interesting. In addition, the same or a companion tape could include stories told by local story tellers or early settlers, or messages from important local or regional people (the Governor, a military commander, etc.). These could serve as background for the teacher, or the teacher could play the actual recording for the class.

(In Kecamatan Sei Ambawang, West Kalimantan, the AID team visited a place where the founder of the village who had come from Java 60 years earlier was still living. Clearly, his story of the beginnings and changes in that village would contribute significantly to making social studies both fascinating and lively. One can easily draw the conclusion that this would also mean better learning and better teaching. Obviously the teacher could also bring that person into class if she were inspired to do so. But the man will not live forever: he should be tape-recorded now for social studies lessons 10 and 15 years from now.)

Bahasa Indonesia. The potential of using tapes in language instruction even where there is a good teacher hardly needs amplification. Where there is a teacher who needs in-service training in language teaching, use of the KERC resources can have two advantages. The KERC can bring expert language instruction directly to students, and the recordings can both directly and indirectly increase the local teacher's competence. There is considerable evidence of teachers learning from materials designed for use of their students. Thus the teacher is likely to learn better Bahasa

Indonesian from the tapes, and the teacher is likely to learn good ways of teaching the language from the models provided on the tapes. Note that this is a situation where teacher training and direct teaching of students begin to blend.

Examples of KERC in Action: non-formal education

There will never be enough field workers in health, nutrition, agriculture, family planning and child care to cover all Indonesian villages adequately. This same situation exists in most nations. And it would be the rare exception where one field worker could handle several of these important information areas satisfactorily. There is a strong need to provide the limited number of PENMAS (community education) workers with resources which will stretch both his reach (number of villages and people he can make contact with) and the scope of his information resources (the number of different subjects he can manage). Presently he must usually depend on the good will, motivation and conscientiousness of people in other departments to provide personally the instruction to meet a village's NFE needs. The AID team observed that this arrangement did not seem to be meeting those needs, particularly in the more remote villages. (GOI Decree No. 32 directed that all NFE programs should be coordinated through PENMAS.)

PENMAS could have impact in many more villages with a wide variety of NFE-type information through KERCs. Villagers could have the use of tapes on special topics such as health without having to await the arrival of a specialist such as public health person (who at any rate is more likely to be concerned with curative/dispensary type activities rather than educational/informational/preventative activities). In the village

the cassette information could be used individually or by groups. (In some places, a cassette "program" is more likely to stimulate group listening than a radio broadcast because often individuals own radios in a village and it is not necessary to come together to listen.)

It is possible to provide, along with a "program" cassette, a cassette which guides a volunteer (head of women's group, religious leader, village leader, etc). in leading a discussion. For example, the recorded guide material can outline the major points covered in the program, suggest how to introduce the program, suggest how to start discussion afterwards, and provide some background information for questions most likely to be asked. The cassette guide can also provide information that gives a local perspective to the program tape that may have originated at a national center.

Although "organized" group listening with a trained leader would be an excellent adjunct to this process in order to stimulate discussion, there is evidence that group listening itself sometimes stimulates spontaneous discussion. There is no evidence whether or not this will lead to action, if action is the goal.

#### Examples of KERC in Action: reaching parents

Teachers can encourage or assign students to take cassette tapes home (with a player) for home study. It is a rare situation where parents and others in the household will not also be exposed to the content. This has a dual implication: first, parents will absorb some of the material from the tape. Second, parents may become more interested in the schooling process and be more highly motivated to keep their children

in school (assuming that the content does prove to be relevant to what they perceive as the family or community welfare).

Related to the last point is the possibility of using the audio cassette system to tape-record specially prepared projects in the classroom to be played for community events. This has the advantage of involving parents and the community in the educational process, and of providing special educational projects for the children. (For example, a simple project would be to collect and record stories from local people on the history of the village. These might even be deposited in the KERC for others to borrow, or for use with future classes. Another possibility is to record local music, or "success stories" in agriculture or other local industry to be played on radio stations.)

#### KERC software production

In the preceding text, several sources of content for the KERC have been suggested or implied. That topic is dealt with more directly, in the following paragraphs.

Village production. Villagers (teachers, village head, etc.) could borrow a tape machine and blank tape to make simple recordings for "exercises", for permanent audio records (to be kept in the kecamatan), and for feedback to outside agencies.

Kecamatan. At this level of government there is a variety of specialists (family life welfare, agriculture, etc) who can contribute content patterned for the local area to the KERC. In the kecamatan where there is a PENMAS official (60% of the nation's kecamatan have one), he can stimulate the development of these materials. This is one level at which social studies material can also be collected.

Kabupaten/Province. Many kabupatans have SPGs, or primary teacher training high schools. They can be encouraged to produce tapes for teacher training. In addition, specialized government departments have more staff and other resources at this level and can prepare taped materials to be duplicated and sent to the KERC. At this level, also, there are government and RRI radio stations which have facilities that might be used for more sophisticated productions.

The SPGs can play a particularly important role. Their own students can themselves begin to use audio cassette technology in student projects. These projects, properly planned and supervised, can be the source of substantial amounts of software for in-service training. IKIP students do this at Bandung; students also produce entertainment/information programs for broadcast on RRI at Jogjakarta. There is a dual impact here: students can participate in the development of "teacher training" software, and they can become familiar and comfortable with audio as a means for delivering and acquiring instruction. They will be the teachers in the next 15 or 20 years who will be in the villages -- themselves targets of "upgrading", and themselves users of educational technology resources such as radio and KERC.

National centers. Various departments can produce materials for nationwide distribution. These can be made available to the KERC for circulation on the local level. It can be made more meaningful, also, if the lower levels of government are able to add to the material to make it relevant to the particular province, kabupaten, or kecamatan. For example, if there is a major government (GOI) plan for credits to rural villages, or to low income farm families, the details on implementation (at whatever level implementation is to take place) can be added to the centrally-produced explanation.

There are other agencies producing software which might be suitable for the KERC system. For example, UNICEF is planning to create a Child Development Media Unit at the National Training and Research Center for Community Education (PPLNPM) at Lembang/Jayagiri (West Java). Although the UNICEF project focuses on a limited number of communities on Java, its materials--with and without adaptation might have relevance to KERCs in other places. Other software development projects coming out of PPLNPM as a result of World Bank support might also produce suitable material for KERC.

**Social studies materials from the nation's capital certainly could be readily produced and distributed through the KERC system.**

**The KERC diffusion system.**

How do materials reach the village? The central point from which materials radiate to the villages is the kecamatan. The "delivery system" will vary from place to place. In West Kalimantan, river taxis provide access between the kecamatan and the villages. In other locations it may be a missionary airplane or a commercial system such as public bus transportation. But the link will usually be a surface transportation link.

Getting materials to the KERC. The content made available to villages reaches the KERC in three ways: (1) Cassette tape recordings can be physically delivered to the KERC from Jakarta, a province capital or a constituent village by regularly available means: mail, messenger, etc. (2) Some content may be recorded by the KERC itself. (3) And some content may be relayed via a radio broadcast to the KERC where it is recorded for the KERC collection. One link in the electronic relay system may include satellite relay.

Following are some typical paths that would be used in the system:

<u>Production point</u>	<u>Intermediate links</u>	<u>KERC action</u>
Kabupaten SPG: in service teacher training material	Messengers carried via available transport to KERCs	Placed in collection
PPLNPM/Lembang: child development information	Recording to Jakarta by mail. Duplicated. Shipped via air to provincial capitals. Local dimension added. Relayed by radio to KERCs	Recorded off-the- air by KERC. Placed in collection
Jakarta: discussion of rural education policy in Repelita	To provinces via satellite. Relayed via radio to KERC	Recorded off-the- air by KERC. Placed in collection
Provincial capital: education needs and development of region	Delivered to KERC through government organizational apparatus	Placed in collection
Village: dalang recorded.	Sent to KERC via local official or messenger	Placed in collection.
KERC: records infor- mation on local agricultural techniques		Placed in collection

Some special notes on KERC. To the extent that it supports official policy some KERC materials can be available in the "local" languages.

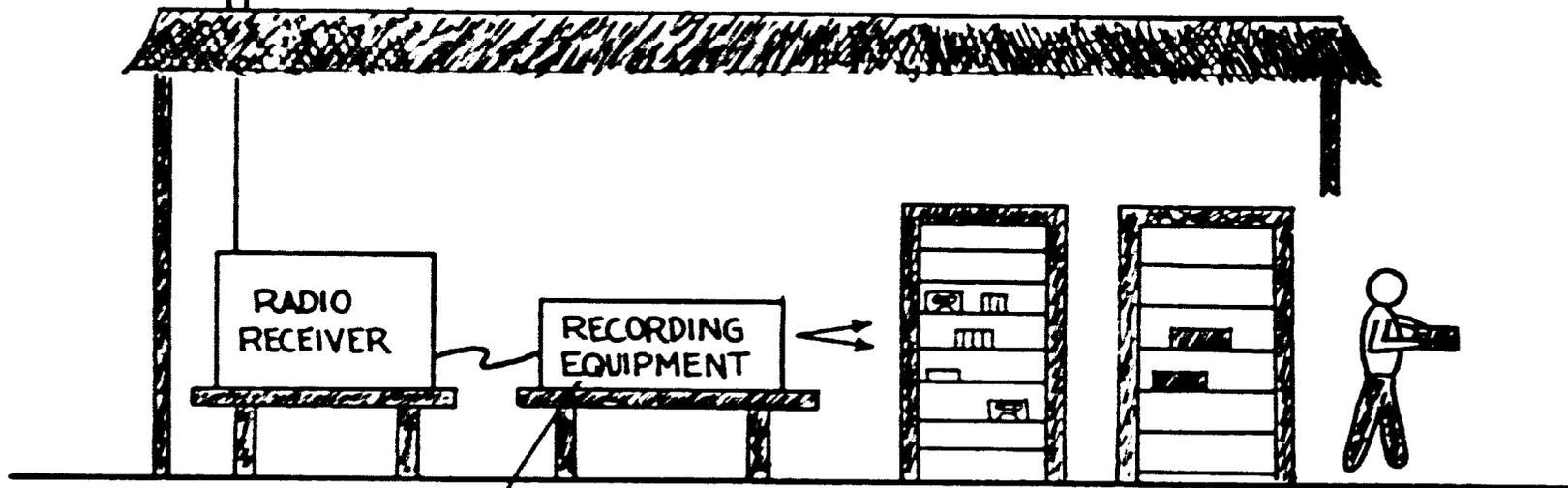
The KERC system does not require a constant input of new material. Emphasis can be given to producing quality materials intermittently rather than meeting regular program deadlines with whatever material is readily available.

The following diagram illustrates the "structure" of a KERC.

# KERC: KECAMATAN EDUCATIONAL RESOURCE CENTER



SIGNAL FROM RRI



STORAGE OF MATERIALS

STORAGE OF LOAN EQUIPMENT

RADIO in the MECS.

There are three roles radio can play in the improvement of rural education, as part of the Model Educational Communication System.

Relaying material to KERCS. This relay operation was discussed in the section on KERCS. The AID team noticed that the RRI station in Pontianac was "silent" between 9-12 in the morning. During this period "programs" can be broadcast by RRI and government stations primarily as a means for distributing material to KERCS. The KERCS can record it off the air and deposit the recordings in the KERC collection. Whatever additional audience listened to these broadcasts would be "bonus" since the content would not generally be intended for casual listening.

General in-service training content. Listed on pages 6 and 11 was some of the content most appropriate for broadcast as part of in-service training for teachers. These programs should be designed for regular listening (e.g. weekly) and deal especially with timely information, recognition of teacher efforts, and "organizational" and philosophical aspects of teaching. Such broadcasts can also be aimed at members of the community whose support may help improve the village educational system

Promotion of KERC materials. An important aspect of the KERC system is awareness on the part of teachers and villagers of the materials available in the KERC. Spot announcements and the regular education program broadcast by the radio stations can promote the use of these materials in the villages, and can serve as a "stage" for exposing suitable village-recorded materials to a broader audience.

Sources of content for radio. The operating center for the in-service teacher training program on radio is most appropriately at the provincial capital, where there is a substantial unit of the Department of Education and Culture. From this center, the Department can draw on its own staff resources, the SPGs, and the resources available from Jakarta. Material from Jakarta can be relayed via satellite to RRI studios via the local satellite ground station.

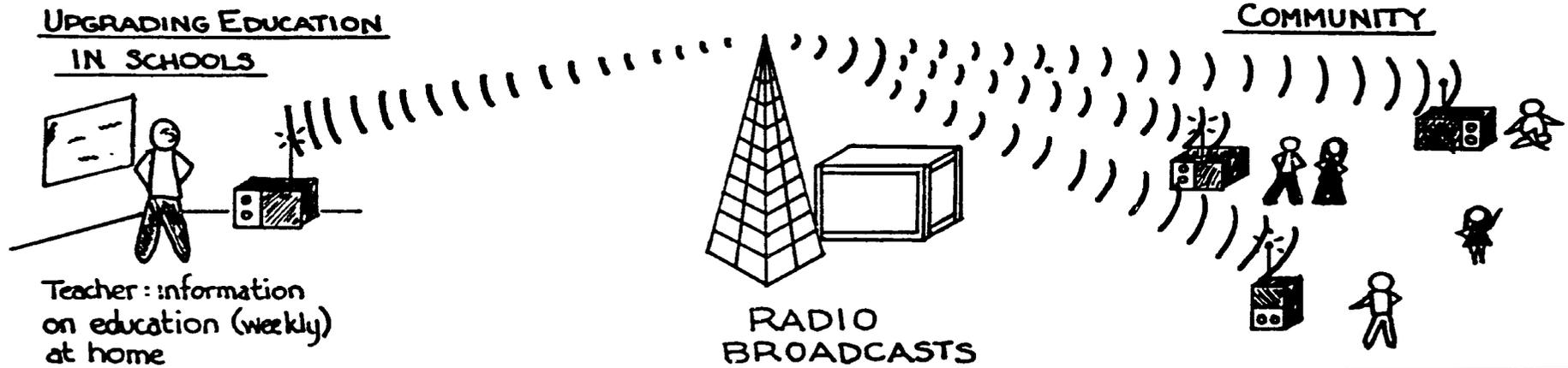
The diagram on the following page summarizes the features of the Model Educational Communication System from a village level view.

Establishment of the MECS.

Following are recommendations of the AID team for improving rural education through use of educational technology in Indonesia.

1. Start with a "demonstration project", rather a nationwide project. Experiment with the Model Educational Communication system in at least three provinces, e.g. those which have highest government priority and where the needs are greatest. These would probably include West Kalimantan, Irian Jaya, and Maluku.
2. Establish KERCS in approximately 50% of the provinces' kecamatans. The other 50% would be used as "controls" for making comparisons in project evaluations.
3. Survey the radio stations which might be involved to solicit their cooperation and see what up-grading of facilities would be desirable.
4. Explore the possibility of establishing limited production facilities at some of the SPGs and enlisting cooperation in production of software by staff and student groups.
5. Negotiate the modification of the Jakarta satellite ground station to permit a broadcast quality "uplink" transmission, and the modification of down links of the ground stations in the provinces to receive-only terminals (ROT) for the broadcast signal.

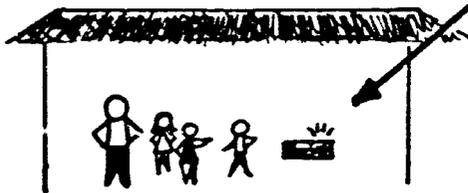
# VILLAGE-LEVEL VIEW OF MODEL EDUCATIONAL COMMUNICATION SYSTEM



Teacher: Independent instruction and guidance



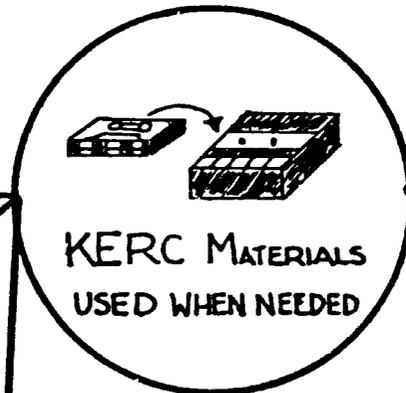
CLASSROOM: ASSIST AND SUPPLEMENT TEACHER



Groups



Individuals



NFE



GROUP NEEDS



FAMILY NEEDS



INDIVIDUAL NEEDS

6. Investigate the feasibility of creating simple soft-ware production facilities at PPLNPM, and establishing a working relationship with the PENMAS system.

7. Analyze manpower situation in terms of short term and long term training needs for supporting the MECS.

8. Negotiate with appropriate officials arrangements necessary to dedicating satellite time to the Model Educational Communication System.

9. Include distribution of textbooks in the MECS demonstration project areas as a high priority goal.

10. Designate a high level Education officer to supervise development of the project and arrange with USAID for him to work with an educational communication consultant on the following:

- 1) Identification of sites
- 2) Analysis of personnel requirements, including in-country and out-of-country short term and long term training
- 3) Develop operating budget and identify AID loan elements and GOI counterpart elements
- 4) Do analysis of commodity requirements
- 5) Identify specific needs for technical assistance during the life of the project
- 6) Draw up a working calendar for the project
- 7) Draft plans for evaluation

11. Anticipate a life of 2½ - 3 years for establishing and testing the effectiveness of the MECS.

#### Relation to other projects

The MECS was designed to stand alone, only in the sense that it should be able to succeed independent of the fortunes or fates of other projects planned by GOI and "donor" agencies. However, it is also important that should other projects materialize, the MECS project should not detract or duplicate, but it should complement them. Following is a brief description of projects that relate to this program for improving rural education.

UNESCO project in teacher training. The MECS incorporates some of the features of the UNESCO project, especially those dealing with the use of radio for in-service training of teachers. If UNESCO should fund such a program it would be consistent with MECS and there could be mutual reinforcement in the respective strategies.

USAID/NFE project: This project focuses on managerial models for coordinating NFE community resources. It is most concerned with 10-24 years olds, and there is a strong emphasis on a combination of literacy and skills training. As the project begins to produce results, its findings can be adopted/adapted into MECS. Its materials testing results might provide possibilities for enlarging the scope of materials collected in the KERC.

USAID/drop-out or "student retention" project. The goal in this project is to test out strategies dealing with structural features of the educational system (tuition costs, school schedules). MECS should have an impact on student drop-out/retention, but its approach is through making the educational process more interesting, more exciting, and more participatory. There seems to be relatively little overlap, although that project might use the KERC in implementing some of its strategies.

UNICEF Child Development Media Unit. UNICEF is studying the needs for family welfare information for children and mothers. It expects to develop a software unit at PPLNPM which would produce materials to meet whatever needs it discovers. The emphasis is on 13 districts in Java. Some of those materials might be adopted/adapted in the KERC.

World Bank/PENMAS. The Bank is interested in upgrading the PENMAS program. It seems quite clear that a successful MECS project could serve as a model for spreading the concept nationwide, with World Bank support. The upgrading process of PENMAS personnel seems to be following a decentralized movement with regular pre-service training probably to take place at the province level rather than at the national training center (PPLNPM). While the details of this scheme have not yet crystalized, such a trend would be consistent with the KERC system. In addition, the Bank seems interested in stimulating the greater use of radio, which will ultimately result in more radio script writing and production training. This could enlarge the pool of radio talent and availability of radio and audio cassette software in various NFE subjects. These would tie in neatly with both the overall MECS and the KERC system.

The plans to upgrade RRI stations in the USAID project could also serve as a model for more widespread upgrading of RRI facilities to allow for more regional (provincial) production of audio materials.

Basically, the KERC system ties in directly with the Bank's hope of extending the reach and scope (i.e., the effectiveness) of scarce personnel resources, especially in NFE.

World Bank/RECs. The Bank is also interested in rebuilding and re-equipping Rural Extension Centers. These centers are designed to diffuse agricultural information to farmers and farm families. Such a project might have a target audience that overlaps somewhat with this USAID project, but the RECs are not specifically aimed at youth nor those at the lower economic levels. However, it seems clear that materials developed by RECs would have greater reach if they were also included in KERCs wherever appropriate.

World Education/Learning Centers. This is a listener group project organized on a village level, using volunteers as group leaders. It is confined to a small area of Java. Geographically there is no overlap. The listener groups usually use radio as the core of their group sessions. To the extent that the KERC idea spreads, the KERC would provide a natural resource for the development of such learning groups.

West German/Rural Broadcasting. This project is being carried out largely in collaboration with the Departments of Agriculture and Information. The latter is the counterpart Department. It involves planning, training, technical assistance in production of rural broadcasting programs, evaluation activities, and activation and improvement of listening groups. There is an attempt being made to broaden the information base from agriculture to other areas of family and community welfare. The West German program tends to be a centrally operated system rather than a locally based system, although it includes assisting local stations in program development.

The availability of the talent trained in the West German project would help provide a pool of trainers in the country, and material developed for broadcast might also be included in the KERC system.

DEPPEN (Department of Information) training programs. The BIRO (Division) for Planning and Foreign Technical Cooperation apparently has agreements with Colombo Plan countries and the United States, West Germany and The Netherlands for training related to mass media. These plans included training during 1975 and 1976. (25 in the first year, 70-80 in the second). Some of it relates to audio; much relates to film and television. Because of the tenuous nature of this training, it is not considered here as part of a foundation for building a USAID project, but it would be nice to have that pool of talent available.

Relationship to the satellite. The satellite should be used in this project to demonstrate its usefulness as a rapid, dependable, good quality closed-circuit system for distributing educational (audio) materials. The project (MECS) is not dependent on the satellite system offering higher fidelity audio transmission, but given the long-range benefits of this type of distribution mechanism, it should be included as a demonstration of how the Indonesian satellite can be used for educational purposes. This is particularly important as it applies to the next section.

### Relationship to television

It will be a long time before there will be a television set in every village, and the power is there to run the set, and the software resources are available to continuously feed the system. An intermediate step might well be a use of television in a pattern similar to the use of ACT in the MECS and KERC. Television modules designed not for continuous teaching, but to accomplish discrete, short term teaching goals, might be "packaged" in a videocassette format and rotated around the kabupaten or kecamatan to meet specific needs of specific areas for teacher training, direct teaching, and NFE. The KERC model may help to answer some questions about the assets and liabilities associated with this kind of strategy in supporting a village's needs in education.

### Evaluation.

The MECS project should have built into it both formative and summative evaluation plans. Establishing a control system is one device to test effectiveness. Careful accounting procedures will be necessary to find out the true costs of reaching the audiences and accomplishing "effects." Finding the cost of a cassette system is particularly important because of the suggestion by some that it is not economical. The real question is: what do you get for your money? And, how much is it worth to accomplish something for which there may be no other alternative on the near horizon?

### Budget.

A detailed budget for the MECS project is not possible until a more thorough analysis can be made of the geographic scope of the project and the resources currently available. However the AID team made a rough estimate that the following would probably be the general pattern for the MECS budget.

USAID loan funds

1. Commodity support (KERC, PPLNPM, RRI, SPG facilities)..	\$550,000
2. Training of Indonesian specialists .....	\$150,000
3. Technical assistance .....	\$100,000
	<hr/>
	\$800,000

**GOI Counterpart funds**

4. Fixed installations (RRI studio use, PPLNPM facilities, school facilities, kecamatan and other government space) .....	Rps. _____
5. Radio broadcast time on RRI facilities and satellite transmission relay time .....	_____
6. Equipment maintenance .....	_____
7. In-country training programs .....	_____
8. Staff time of operational people (script writers, etc.) .....	_____