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1986

Dahlan, M. A. (1986). The Palapa project and rural development in Indonesia. In AMIC-CSD-WACC Seminar on the Communication Revolution in Asia : New Delhi, Aug 21-23, 1986. Singapore: Asian Mass Communication Research & Information Centre.

<https://hdl.handle.net/10356/91139>

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Satellite communication
rural development
Indonesia
Palapa

(17)

THE PALAPA PROJECT AND RURAL DEVELOPMENT IN INDONESIA

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The *Palapa* domestic satellite communications system has become an important part of life in Indonesia today, ten years after its first satellite was launched into orbit in 1976. It has gained wide acceptance as one of the basic infrastructures essential for national development. It has been credited for accelerating modernization and associated with the change, progress and achievements in many sectors. It is considered indispensable to the well being and integration of this archipelagic nation: the only economically viable mean to link a population of 165 millions and 170 different ethnic groups, living in 13,677 islands which spreads in an area of more than five million square kilometers - with its farthest East-West distance often compared to that between London and Teheran.

For Indonesians, the Palapa system (also known by its Indonesian acronym SKSD) symbolizes the Communication Revolution. Within only two years after the final decision was made and 18 months after the contract was signed, a whole system capable of overcoming the great distances and natural barriers of the country, was established. High quality, continuous 24-hour, and direct long distance dialing service was suddenly made available. Compare this with the development of the Jawa-Bali microwave system completed earlier, and the revolutionary character of Palapa is more pronounced. The Jawa-Bali system took nine years to build; and it connects the cities in only two islands - relatively medium in size and not very difficult in terms of the terrain, compared to the bigger islands in the country. In order to have a national network to link the main population centers, previous plans call for of at least four such systems in addition to a combination of other systems using different technologies such as

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underwater cable, VHF and troposcatter ("over the horizon") system. If that alternative were selected ten years ago in developing the national communication system, it would have taken Indonesia well into the 21st Century to achieve what it has been able to accomplish with Palapa today.

Palapa also has become one of the stars in the national development scene. Whenever relevant, the Palapa experience is always put forward to illustrate the success of development, the importance of information and communications, the needs for technology, or sometimes, the problems of development. But generally, the context of analysis is economics, urban or industrial development. The supporting data are usually the number of telephone sets; longdistance calls [between cities]; telephone lines and exchanges, ground and broadcasting stations in population and commercial centers, and the size of [potential] coverage area.

The rural context

A more meaningful context in testing the national significance of any undertaking in a developing country, however, is the rural needs. The majority of the population live outside the cities and work in the agricultural sector. In Indonesia, 123 millions or 75% from the total population are rural people. The rural context should be taken into account in order to get a good perspective of the Palapa experience as a case study on the impact of the communication revolution in Indonesia.

Recognition on the relevance of Palapa to rural development, however, did not exist in the earlier years. When the decision to build a domestic satellite communication system was revealed for the first time in a special seminar in 1974, it met skepticisms and dissent from various quarters, many citing rural considerations not presented by the proponents of the project.¹ Questions were raised concerning the feasibility and economic assumptions of the project, the justifications for such a huge outlay by an agricultural country, the capability to cope with a quantum leap to high technology and even the moral appropriateness of the decision, in view of existing conditions in most parts of the country - particularly the rural regions. Some of the most vocal voices in the seminar came from social scientists who were worried about social impact of the technology, such as the effects of satellite television to the rural population.

The reluctance was even expressed by those in the education and information sectors who presumably would benefit a great deal from the system. Education experts compared the cost of the satellite and its ground stations with that of building thousands of schools then needed in all parts of the country and training teachers to fill those schools, an immense task they viewed of a higher national priority. Information officials worried about potential problems which could be faced by information specialists and extension workers in the villages. Officials from the national television agency TVRI were not overtly enthusiastic; they did not appear to be adequately aware of the concept, its potentials and its preparation until it was ready to be discussed openly in public. Contrary to later and more popular impressions, the push to launch the satellite did not come from that agency and the main consideration was not nationwide television transmission to reach the farthest isolated villages.²

When the decision was made in the beginning of the first five year plan or Repelita I (1969) to explore the possibilities for implementation of the project in Repelita II (1974-1979), the main reason was the need to provide a reliable nationwide infrastructure for all modes of telecommunications, particularly voice and data. The context was a longrange strategy to change the economic structure within 4-5 Repelitas from mainly agricultural to one in which an emerging industrial sector would play the more dominant role. To support that strategy, the government company in charge of telecommunications, Perum Telekomunikasi (Perumtel), must develop a modern system which could service an expanding business and industrial sector.

Indeed, activities created by newly opened investment opportunities and Repelita programs in various economic sectors already started to generate a rapidly increasing communications flow. There was a raising demand from the private sector, especially from companies in the extractive industry (i.e. mining, oil, timber), for fast and continuous communications between remote fields of operations and their headquarters. Yet, telecommunications were in a poor state. Facilities were available only to a limited part of the country, equipment and infrastructure were antiquated, unreliable and deteriorating, and long distance service between many cities was restricted to certain time of the day due to constraints inherent in the technology then in use. If Perumtel did not provide a better alternative, a growing number of impatient corporate customers would establish

or expand their own communications systems. In fact, more than 15,000 private radio communication stations were already operating for this purpose, some forming extensive networks.³

Obviously, the main motivation behind Perumtel SKSD program in the preliminary stages was business considerations. A massive and immediate program was simply required for the company in order to be able to retain control of its market, and at the same time seize the rare opportunity for rapid expansion presented by the growing economy. This was a tall order which could only be met by a satellite system due to its technical capabilities: nationwide coverage area, capacity much higher than any other systems, short construction time, high technical quality for continuous 24-hour service, and the flexibility to meet unexpected needs.

The macro economic, social and political considerations (including the rural context) came later, when higher level policymakers saw that the same technical advantages could also be beneficial to reach other development objectives. For example, the wide coverage area would open the possibility for an administrative communication network to reach the lowest echelon in the most isolated village; and the higher capacity would enable expansion of television and radio broadcasts.

Even more important was Palapa's potential in making the policy concept of Wawasan Nusantara operational. This concept of Indonesia as an inseparable entity in geographic, demographic, political, social, cultural, economic and defense terms, would be workable only with the support of adequate communication or transportation systems which could effectively link any two points in the country at any time. The implementation of this key concept was a problem for a country like Indonesia due to the vast expanse of territorial waters (all accessible to international sealanes) between its land areas and the difficult topography of a large part of its region, which made physical communication vulnerable to natural barriers and outside interruptions. According to Emil Salim, then Minister of Communications, SKSD Palapa is one of two essential means for this purpose; the other being the "pioneer" (bush) airline connecting isolated locations in the heart of the jungles to the rest of Indonesia.

Subsequently, there was an apparent shift in national policy concerning SKSD from mainly technical to a political orientation which consider

development goals beyond telecommunications. Realizing Palapa's other potentials, the government decided to use it for political education and development communication to both the rural and urban areas throughout the nation. The idea was to use television as a medium to explain development and the 1977 general election, the first to be held after 22 years. One transponder - when needed two transponders - would be made available for color television transmission between Jakarta and the 34 locations in 25 other provinces where Perumtel would build its ground stations within two years. As a consequence, TVRI and its parent organization (the Department of Information), were posed with the problem of building new broadcast facilities and supplying public television sets in order to put the policy into effect.⁴ With this decision, the television agency had to reorient its own development planning to reach the villages.

The change of emphasis in policy statements did not affect the main telecommunications plans. What the television decision did was to popularize Palapa and rally political support for the project. Actual implementation continued to be geared toward building a reliable and profitable system, concentrating first in the main urban areas and at most the smaller provincial seats. Due to low economic feasibility, a specific telecoms policy and development program for the rural areas was lacking in the first years of SKSD.

Closer attention to the rural area was shown in the last years of Repelita III (1978-1983), when small ground stations were built in 102 kabupaten (subprovince or district) towns. The plans called for establishing telecommunication service, particularly telephone lines between all districts and their subdistricts (kecamatan).⁵ Selected subdistricts which function as important rural production centers, will also be equipped with their own telephone exchanges. Despite all these, the rural areas (especially purely agriculture villages) are not yet in the priority list. Most communications between and within towns in many provinces and districts still have to resort to dated equipments or CB radios for some time to come. Even with Palapa, terrestrial facilities are still needed. They could not be build as fast as putting the space component in orbit or without substantial additional investment.

The longrange prospects for rural telecommunication is more encouraging, although it still would be lagging far behind the urban areas due to

economic constraints. One policy recommendation already made for rural telecom planning for the year 2000 sets the goal for the installation of only six line units, including one public telephone for every village. (But this would entail 380,000 line units spread across the vast expanse of the country). Alternatives which capitalize on the strengths of Palapa, however, are being examined to develop rural communications in a significant way. They include: a rural system employing a combination of satellite and terrestrial radio systems, community antennas for direct satellite telephone link with the outside world, satellite facsimile to substitute for ground mail service, and nationwide educational television.⁶ Nevertheless, it should be pointed out that there are also opposite views preferring reduce reliance on the SKSD and more emphasis on expanding terrestrial networks using newer technologies (e.g. cellular radio, fiber optics cable) as a reaction to recent experience with the satellite technology.⁷

Rural "satellite" television

Television may appear to be an afterthought in Perumtel planning and it uses at most two of the total 24 Palapa transponders, but in terms of rural development it appears to be far ahead. For the rural population and perhaps also for the majority of urban people, Palapa means television. It is the one service which is really within their reach, from the many provided by the satellite system.

The availability of television is the result of an accelerated TVRI development plan, once the decision to go satellite was made. For instance, the number of transmitters and relays is increased from 26 in 1976 to 191 in 1983. In addition to Perumtel groundstations, TVRI also build its own TVRO (television receive only) mini groundstations. In terms of physical area, latest figures (1984) show TVRI coverage of 560,000 sq.kms. with a potential reach of 98 million people. This is a jump from 1976 when the respective figures are 175,000 sq.kms. and 72 million people. Even so this means that television is still unable to reach some 90 million people who are thinly spread in a much wider area.

Real reach would, of course, be lower than what is reflected by the physical reach of television signals. Reports show that TV ownership in the rural area is not widespread, although people are willing to make sac-

rifices in order to own a receiver set. Total ownership is reported to be 5.6 million sets in 1984 compared to 420,000 in 1976 but it is not clear how many of them are in the rural area. It is assumed that the number of viewers per set is much higher in the villages; on the other hand, reports also show that the physical distance between houses and viewing places work against regular viewing. Nonetheless, the findings of a sub-survey of the 1983 Agriculture Census indicates that 29.3 million people or 47% of those over 10 years old in the rural area, watched television at least once in the week preceding the survey.⁸

Regardless of the numbers, the contribution made by satellite television – and indirectly by SKSD Palapa – to development in the rural area is widely acknowledged in various reports and studies.⁹ The following are probably among the findings most relevant to the topic of this seminar:

1. Contribution to national integration. The satellite facilitates the broadcast of a central program, making it possible to disseminate a similar national outlook and interpretation on various aspects of life to the audience in all regions. News concerning events in various parts of the country increases awareness of similarities and the feeling of being one nation. In the same manner, cultural programs presenting diverse customs, interesting ways and habits, ethnic dances and songs, or local folklores enrich understanding about each other among the various subcultures.

The success of such programs is evident from their popularity, as reported by almost every study in all regions. The agriculture census for example, found the cultural shows at the top of the list of favorite programs with 20.9 million viewers or 71.2% of the total audience in the rural area. Some researchers observe that song and dances performed in local parties and shows now include those from other ethnic groups, imitated from TV shows.

Another indication of TV impact in this respect is the increasing use and knowledge of the national language Bahasa Indonesia. The ability to speak Bahasa in the villages increases from 34% in 1971 to 54.8% in 1980, according to census statistics. Various studies also reported the popular use of television "language" (the Bahasa as presented by announcers and actors including their idioms, terminology, or mistakes).¹⁰ And there is also a common "national life-style", again copied from television, among the

youth in rural as well as urban areas. Such trend would contribute to the rise of a future generation of Indonesians who are more alike in ways of speech, behavior and mannerisms, and presumably more integrated.

2. Modernization and adoption of innovations. With all the variety of programs, it is to be expected that TV would open up new horizons to the village audience. The increase of viewers knowledge is reported by everybody, among others by Muis who found that villagers also learn about petty things previously unimportant to them (e.g. dandruff) or knowledge irrelevant in the context of their life (e.g. skiing or ice skating).

Many writers also credit TV for bringing change and instilling modern attitudes, adoption of innovations (e.g. new rice cultivation methods, use of chemical fertilizers), and other implications to a farmer's life. For example, Alfian reports on such effects on entrepreneurship as the rise of battery recharging and repair services or television rental for wedding parties. Muis confirms the increase in aspiration, cosmopolitaness, innovativeness, and information seeking activities. Yet, he also points out that some change may be superficial; for instance, the farmer who adopt the new rice strain discussed on TV may still held traditional ceremonies to ask for blessing from the gods for a successful crop.

3. Structural change. It is to be expected that, as shown by some studies, television and its paraphernalia have become the new status symbols in the villages. People compete to be the first owner of a TV set even before the relay station which will cover the area is built. In some regions the race is to become the one with the tallest antenna capable of receiving signals from another province or from Malaysia or Singapore. However, according to some researchers, the ultimate status is not merely ownership but being able to get more neighbors to watch one's own set.

Hence it is argued that television may induce role changes in social communication networks and, implicitly in the social struture, i.e. by assigning leadership status to TV owners. Since the owner's house is the point of gathering, he is the person to ask concerning TV programs and also, the information received from the medium. This contention, however, is not supported by my own research on social communication networks, which shows no correlation between media ownership and opinion leadership in the villages.

4. Recognition for rural efforts. One implication not mentioned by the studies is the special recognition paid by television to rural development efforts and the attention to rural needs in its programming. As a rule, each national newscast includes one or two items on village development; besides, it always ends with a short feature concerning an aspect of national development, often on agriculture. There is also a program relevant to the rural scene every day, e.g. the show "From village to village", farmer quiz, drama, comedy, and others. Such policy gives more opportunity for the farmers to learn and gives them a sense of pride. At the same time it raises the awareness among urban population concerning rural problems.

Perspective for analysis

The studies discussed in previous pages gives the general impression that the domestic satellite system, particularly satellite television, has in fact stimulated rural development to a great extent. Before making that conclusion, however, some notes of caution may be appropriate in order to analyse Palapa's role in the correct perspective.

First: most of the works have studied the impact of television or, at the most, indirect satellite television. They do not necessarily study the impact of the domestic satellite system. A few are actually studies of television effects in general and do not attempt to relate to the satellite, however indirect. For example, parts of one study investigated the effects of "satellite television" in a non-satellite city, i.e., where TV signals from Jakarta are received through microwave links before further broadcast to the local community.

Second: the introduction of satellite communication comes at a time of rapid pace of development and a respectable rate of continuing economic growth. With more income to spend, increasing availability of consumer goods and the introduction of new lifestyles, social, cultural and behavioral changes are bound to occur. Consequently, some changes attributed to television effects may be in fact a part of a general growth across the board. For example, TV ownership did increase drastically after Palapa but so did ownership of cassette recorders and other consumer appliances.

Third: Palapa is not the only new infrastructure to break the isolated

ion of rural areas. New roads and bridges, pioneer airlines, combined with the availability of new transportation equipments (cars, trucks, buses, outboard motors), help to open many of the areas previously inaccessible to the outside world.

Four: Information flow to the villages are not the monopoly of television. Various extension workers and information specialists are stationed in the rural area to disseminate information, motivate innovation and explain development in terms of the specific local condition. They also organize kelompencapirs (listener-viewer-reader groups) to discuss what the viewers see on television, hear from the radio or read from rural newspapers. In addition, there are the commercial propagandists, many equipped with mobile units (complete with film projector or VTR), who tour the villages to sell new products to meet the needs of the farmer or his family. Hence innovation and change may not be attributable to television, but most likely to personal contacts - including that of the farmer's own social communication networks.

The role of television therefore, should be viewed in connection to the other factors at play in the rural area. On some aspects, television may play an important role, such as in building national integration or in spreading the language. On most other aspects, its role may be limited to a complementary one. For instance, satellite television may be the first source for a new knowledge; but other factors seem to play a bigger role before innovation takes place.

The role of the satellite also should be viewed in the same manner. The Palapa project is necessary before television can reach all the rural area simultaneously. Yet without the right programs and the participation of the audience or his community, Palapa would not be able to be of such great benefit to the population in its coverage area.

Palapa's own impact

Studies on the impact of Palapa on the rural scene have been limited to those on the indirect impact by way of television. Except some plans for future rural telecommunications, not much is known about the direct impact of the satellite system itself to the villages.

One implication not mentioned by the studies is "the climate of development" brought by satellite to the rural area. Once information concerning the potentials of Palapa is known in an area the public would demand a groundstation, TV sets and antennas would begin to show up in the market, the government would be pressured to build a relay station, and sometimes, the community make a collection to speed up the process or even build their own station.

Another important implication may be the change in attitude toward new technology. The Palapa project succeeds in bringing Indonesia to the Information Age and in gaining public support for a sophisticated technology. The resulting excitement surrounding its launches or the anxiety concerning its problems motivate people to learn about the principles behind the system, and make them aware about the importance of technology for the future of the nation. This may also explain public receptivity to other communication technologies and products which have been coming in to the market, also in the rural areas, in recent times.

There may be other implications more relevant and strategic to rural development which have not receive the attention they deserve. A general change is certainly being felt in all sectors as inter-regional telecommunication is improved. To cite some examples, the transmigration program to move 500,000 families in one Repelita must have been stimulated in some way by the Palapa system; resistance to move from over populated areas in Jawa to outside islands is weakening as physical and psychological distances become shorter and apparent differences become less sharp thanks to satellite communications. Easy exchange of information and long distance consultation has assisted decisionmaking concerning remote regions and should have speeded problem solving for rural development projects. Similarly, easier communication for the private sector may have been crucial in opening new markets for rural products which are previously neglected.

In conclusion, the impact of SKSD Palapa on the rural scene has been viewed mainly indirectly in connection with nationwide television. Some of those impacts may be attributable to the characteristics of television as a broadcast media, although without the infrastructure of Palapa the strength of the media would never have been utilized. Also, there may be other - perhaps more significant - implications which have escaped the

attention of researchers. Broader studies seem to be needed to analyse various aspects of the Palapa domestic satellite system, in order to find out its real impact to rural development. This may be difficult to do as many of the impact would be indirect, and could be claim as the impact of other development sectors served by Palapa. The impact of Palapa may not be clear cut, because as have been said about other telecommunications projects, the satellite is "an infrastructure to other infrastructures" in national development.●●●

NOTES

¹The seminar on the "Utilization of a domestic satellite system" was held in Jakarta in September 1974, attended by academics from various disciplines and government officials. An accompanying exhibition showed how the satellite would link Jakarta and remote mining sites but not its relevance to rural development, e.g. how it could open communications with isolated villages. Another seminar organized by the Bandung Institute of Technology and more technical in nature, followed in the same month. The seminars were viewed by many as a PR exercise to raise public support for a decision already made. The decision was officially revealed by President Suharto in his annual budget report to the parliament several months later (January 1975). See: Dahlan, 1981; Alisyahbana, 1981.

² TVRI lacked awareness of the satellite concept and its development in the early stages. Even three years after the President approved in 1969 the initial plans for the SKSD, TVRI plans still rely on their own microwave system which linked the main urban and densely populated areas of Java. A book published in 1972 by the agency limits discussion about future potentials of communication satellite for television to the theoretical use of Intelsat. Until 1975, TVRI broadcast outside Java was limited to three provincial cities and one oil city with no direct link to the main network (Dahlan, 1982).

³For a comprehensive account of the historical developments of SKSD Palapa in English, see: Directorate General of Post and Telecommunications (1982).

⁴Actual satellite television depends, of course, on further rebroadcast facilities at the local level, including: tail links between Perumtel ground stations and TV stations, transmission and relay stations if not already existing, and receivers on the part of the audience. In fact, new stations had to be build because the new target was much higher than TVRI's own plans. The original plan projected the construction of just a limited number of broadcast and transmission stations (all B&W) to reach parts of at most nine provinces, particularly urban areas surrounding provincial capitals. In the meantime, existing facilities and equipments had to be reexamined in order to meet the requirements and make use of the high standards and of the Palapa system.

⁵A kabupaten (district) is comprised of several kecamatan (subdistricts), the lowest administrative unit next to a village. As it is composed of several villages, some researchers say

that the subdistrict could be defined as rural while the district as not purely rural. Others say that district towns – and even some small provincial seats – are rural since they are basically agricultural. For its own purposes, Perumtel defines any community with a demand for less than 500 telephone lines as rural. See: Moenandir (1982).

⁶ See, e.g.: Perumtel (1980), Abdulrachman (1984). The first reference discusses plans and projections toward the year 2000. The use of facsimile to substitute traditional postal service is proposed in various articles and lectures by Iskandar Alisyahbana

⁷ The experience involves launch failures and control problems. The fourth satellite in the system (Palapa B2) failed to reach orbit and was lost during launching by space shuttle in February 1984. Its replacement was originally scheduled to be launched this year but postponed to mid 1987 due to the Challenger disaster. In the meantime, Palapa B1 faced control problems in August 1985 when it veers from orbit and cease transmission for three days.

⁸ BPS (1985). The study also shows that television viewing is the third most popular social activity in the villages next to radio listening (65%) and organized activities (48%).

⁹ E.g. Alfian and Chu (1981), Rachmadi et.al. (1980), Muis (1982), Pajajaran (1980), Dahlan (1980, 1981, 1982), and a score of reports in periodicals and newspapers.

¹⁰ Among others: Muis (1982). While his data show that knowledge of the national language and the new terms is increased, he points out that television does not necessarily contribute to good language ability because it does not use good Bahasa Indonesia consistently in all its programs. Drama and certain other formats, for example, may require the use of dialects and slang.

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