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FIT/510-BHU-61
Technical Report

BHUTAN

**Development of Bhutan
Broadcasting Services**

Tripartite Review Report Bhutan Broadcasting Services

by **Carlos A. Arnaldo**
Lis Garval
Martin E. Allard
Sonam Tshong

Serial No. FMR/CII/COM/94/219(FIT)



**United Nations Educational,
Scientific and
Cultural Organization**

Paris, 1994

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TRIPARTITE REVIEW REPORT BHUTAN BROADCASTING SERVICES

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**Report prepared for the Government of the
Kingdom of Bhutan by the United Nations
Educational, Scientific and Cultural
Organization (UNESCO)**

**United Nations Educational,
Scientific and Cultural
Organization**

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Technical Report
FMR/CII/COM/94/219(FIT)
8 June 1994

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Printed in France

Executive Summary

During the last year, a new self-confidence and a firm continuation of broadcasting operations have been observed in the new autonomous media organization. In the recruitment of new personnel (and the separation of unfit staff), in financial operations and management decisions, indications of a new trend towards independence and professionalism has been shown. Within the limitations of personnel and resources, there has been an increased orientation to development issues in programmes, and this is shown especially in field productions. Technical operations have been sustained and the first steps towards expanding the FM network to Phuntsholing have been taken.

BBS has also shown its potential role in influencing the development process in Bhutan and in linking general cultural themes to programme production, particularly in the use and development of the official language, Dzongkha. Radio should thus be used more effectively as an active mechanism of dialogue between government and people, to facilitate articulation and exchange of views and opinions on issues of local national and international concern. In the endeavours of His Majesty and the Government to modernize society, BBS has a crucial role in encouraging more popular participation in decision-making. But success in this domain depends on professionalism, and therefore further training and skills are needed.

Further necessary improvements must also be made in the areas of: programme substance, news handling and evaluation, diversification of news sources, utilization of technical facilities to meet the long-term objectives of the project. Field productions should include programmes related to district and gewog fora, local cultural events, and features concerning women in development. Aside from programmes on and by women, all programmes should reflect a concern for women as a viable and contributing partner to the development process. The computer networking and operations, should be completed; priority should be given to starting the library and AV archive operation.

Based on the firm groundwork laid by the project and particularly in view of the renewed dynamism shown by its Executive Head under the new autonomous status of BBS, there is ample justification to forecast continued development of the radio station along the general orientations indicated in this report, in spite of the difficulties it has for a large part already overcome.

It is therefore strongly recommended that substantial external support be continued for a period of two to three years and an appraisal mission be organized to write a project proposal based on the findings of this report and the recommendations put forth by the Tripartite Mission. The areas to be covered by external assistance should include human resources development, technical support, FM network development.

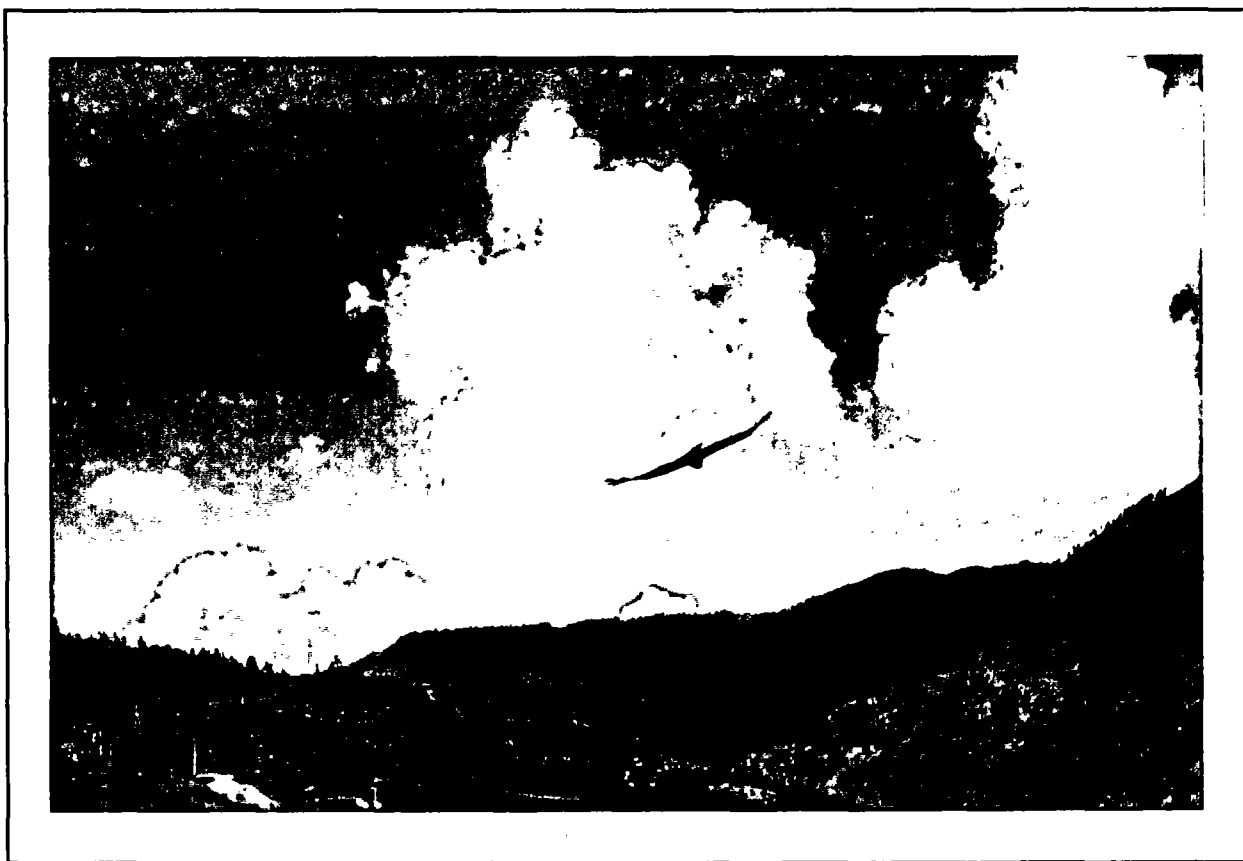
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Technical Report

I INTRODUCTION

1. The Himalayan relief of the Kingdom of Bhutan historically has imposed a number of challenges to cultural unity, development and even external relations. The north-south ranges of mountain ridges have effectively challenged the passage of radio waves for complete coverage of the country. At the same time, they have made for a multi-cultural country of four major languages (although there are as many as 18 distinct language groups).



“. . . to the most remote valleys of the kingdom." Photo UNESCO/CAA/93

2. It is therefore well appreciated that the foremost need in 1989 when the project started, was to provide quality broadcast transmission, consistently and economically, to the most remote valleys of the Kingdom. This had to be accomplished by an engineering team that was mainly self-trained on-the-job, though some have had vocational and diploma education. Broadcasting in four languages was a necessity, not a luxury. It was also a major challenge since one third of the production staff could not read or write in English -- the *lingua franca* of the national administration, the international agencies, and the principal source of most educational and developmental programme materials. English is also the language of learning, whether from visiting consultants or on study tours abroad. Dzongkha, the national language, on the other hand, is a formally written and spoken language. Few of the radio staff are accomplished in this language, to be confident and forward on the air.

3. It is in this context that the project operated from 1989 to 1993. A tripartite mission was conducted in 1991 and recommended a further, review before the end of the project.

Organization of the Mission

4. The tripartite review took place in Bhutan from 8 to 16 September 1993. During this time, the mission was able to inspect field production work in Punaka valley and Namseeling, and the FM relay site at JJ Mountain Peak.

5. The TPR mission was composed of Carlos A. Arnaldo, representing UNESCO; Ms Lis Garval representing Danida; Mr Sonam Tshong, Executive Head of Bhutan Broadcasting Corporation; and UNESCO technical consultant, Mr Martin Allard, who served as resource person for technical questions. To facilitate the work of the mission, an in-depth evaluation has been undertaken by an external consultant (Jan Servaes) to provide detailed observations of project progress.

Terms of Reference

6. The terms of reference agreed upon by UNESCO, DANIDA and the Government of Bhutan were to assess whether the project has achieved both the immediate and the development objectives as stated in the project document; and in function of this assessment, propose considerations for future action on the part of Government, UNESCO and Danida. These recommendations are formulated in a later section of this report.

7. The full text of the Terms of Reference are found in Annex I.

II FINDINGS OF THE MISSION

8. From the early days of broadcasting from a 'biscuit tin,' as the former Deputy Director, Ms Louise Dorji described the first attempts to transmit on a handmade shortwave transmitter in 1973, Bhutan Broadcasting Service has advanced to a modern national radio station. A large complex (built under Indian bilateral cooperation) houses the studios, offices and maintenance areas. Tall towers emit shortwave transmissions to most of the country, while FM is beamed to the capital, Thimphu, using the UNESCO designed transmitters. The first steps are being taken to expand the FM transmission network south to Phuntsholing and East to Tashigang. Despite routine and sometimes overwhelming difficulties, BBS has managed to take over the new station complex and maintain programmes consistently since 1989.

Management

9. A major event has influenced the recent orientations of the project 510-BHU-61, Development of Bhutan Broadcasting Services. It was the granting of operational autonomy to BBS and to the national newspaper, *Kuensel*, on 5 October 1992, freeing it gradually of government subvention and direct control, thus paving the way for independent media. BBS is now an autonomous corporation governed by and responsible to a National Editorial Board composed of a Chairman and members comprising representatives from the government, media professionals, scholars and eminent citizens. Of the 7 board members, the Joint Secretary of the Ministry of Finance is the sole representative of government.

10. For an as yet unspecified period, annual funding is to be met from internal revenues in the form of subsidies or soft term loans which are expected to be paid back later. It is recognized that full financial viability will not be possible for some time. Nonetheless, these autonomy measures were not intended to make the sector into a profit making enterprise but to enable the professional growth of the media sector in Bhutan in line with the decentralization policy of the government. The expectation therefore is for diversity and improvement in programmes, and thereby an enhancement of credibility and popularity of the media. No regulations regarding editorial content of the electronic media have been circulated and there are no government bodies responsible for issuing guidelines to the media. Editorial policy remains the prerogative of the station management.

11. These measures have already begun to have an effect on recruitment policy. A new Executive Head of the Bhutan Broadcasting Services was appointed in March 1993; this appointment was made primarily on the basis of management ability. Five unfit staff have since then been separated and two qualified producers have been thus far recruited. In future, more rigid qualifications will be demanded, salaries with realistic incentive and adequate sanctions will be offered. Plans are now underway to expand the management team to include new posts for advertising and for information systems management; and to appoint full time personnel responsible for research, library and archives. A news correspondent post will be created in Tashigang, the eastern part of the country, and most difficult to reach.



Karma, a new producer, visits a new market in and interviews farmers and their wives selling vegetables and farm produce. An hour or two of interviews nets him several actualities for a programme on farms and marketing. Photo UNESCO/CAA/93

12. These moves represent major advances on the Royal Civil Service Commission regulations to which BBS was formerly subjected; under that scheme, recruitment policy did not fully achieve the objectives of providing professional and permanent manpower for the broadcasting service. This was strongly noted in the 1991 Tripartite Report and especially in the recent Evaluation Report of Jan Servaes.

13. Management, however, still needs strengthening along the lines already taken up by BBS. The management staff could also benefit from further management training *in situ*.

News Production

14. The newsroom is completely computerized and prepares news copy in English, as well as the scripts of Dzongkha, Sharchopkha and Lotsamkha. The mainstay of the newsroom are the News Chief (R. Choden) and two Senior News Producers (L. and Y. Gyeltsen). The mission was pleased to observe that three of the six news staff are women. As a rule, efforts should be made to balance recruitment of men and women for both news and programme staff.

15. Although news is presented regularly and with a consistent operational rhythm, the mission did observe that the airing of news tends to be dull (presentation of slightly edited official bulletins), incompletely resourced and inadequately related to key development issues, even when the topic itself is about development (hygiene, production, marketing). Some of this is due to incomplete news resources in the capital (BBS has no international news feed, but relies on monitoring of BBS news) and inadequate reporting from the twelve stringer reporters in provincial towns, who are sometimes unaware of the larger development issues involved. And some is due to lack of training on the part of the BBS producers in how to be sensitive to development issues, how to treat them and how radio can be used to catalyze development, even in a news format. Further training and day to day monitoring could solve this.

16. While some news items were based on taped interviews and outside reporting, few of these tapes were edited for replay during the newscast, mainly because of insufficient time before lock-up. On other occasions, an editorial decision was made to save these interviews for editing into the weekly news round-up, *Bhutan Weekly*. While much of the news time is spent on translation, little of the translation work deals with new items or new approaches in the other languages; hence other language newscasts are mainly repetitions of the English news, and not really new programmes with orientations to those specific language audiences.

17. The mission feels that the news staff could benefit from intensive courses in basic journalism techniques, news writing and news presentation

from a senior broadcast journalist, even possibly from the region. Greater benefit could be gained from the 12 stringer reporters. Further training and motivation for these stringer reporters is still required. Increased productivity might also be expected from those assigned to translating news, to bring to bear specific audience perspectives in news presentation.

18. It is also suggested that while maintaining the aims of properly spoken and written Dzongkha, some relaxation might perhaps be afforded for programmes requiring a more 'colloquial' approach. This approach might be more encouraging for persons invited to speak on Bhutan Radio. This relaxed approach should be used discretely for news programmes, but more flexibly for feature and development programmes.



"... a more colloquial approach." Radio is people talking to people. Producers are trained to meet and deal with people of all walks of life and transmit their dialogue on the air. Above, Karma interviews ceremonial dancer for the tri-annual festival of Namseeling. *Photo UNESCO/CAA/93*

Programme Production

19. Programme production has benefited from a series of training consultants and producers are eager to volunteer for field productions, particularly since full per diem is now provided and not the minimum civil service day allowance (which barely pays one full meal), as formerly.

20. The section produces feature programmes on developmental activities (farming, health, education, environment, children and women), and light entertainment in the form of local music programmes. Other productions have featured historical, literary and cultural programmes. Formats used so far have included interviews with decision-makers, members of rural communities, eminent intellectuals and artists; and the airing of original compositions by local musicians. Panel discussions and quiz programmes are also popular; furthermore, they obtain feedback as well as encourage participation in the programmes.



“. . . focus on women as veritable partners of the development process.” New producer, Dukpo, interviews an inhabitant of Punakha on women’s issues. *Photo UNESCO/CAA/93*

21. In all these programmes, it is important that the BBS team bear constantly in mind the dimension of women in the development process, that women should have access to participation in decision-making and that radio can help provide that access. Radio should even make specific efforts to demonstrate the contributions of Bhutanese women to the development in their villages and towns, and focus on women as veritable partners in the development process. Programmes on health issues might specifically consider the difficulties women have to face in child birth, malnutrition and inadequate practical education. Recruitment of more women in the programme section could also be helpful to ensure this precious dimension of development.

22. The mission observed with great satisfaction a number of field recordings by the News Production Chief and two of the most recently recruited producers, one versed in Lotsamkha, the other in Sharchopkha. While the new staff were eager to learn, it was also evident that generally there were insufficient foundations for producers to learn a certain sensitivity to development issues and how they might be treated in interviews, coverages of a town festival (such as that in Namseeling), and how to relate cultural events and phenomena to development. It is not enough for producers to know the techniques of recording interviews, they must also master the subject matter and implications beyond the 'factual event.' And, most important, they must appreciate the development concerns. More guidance and coaching from their senior producers is urged. Further formal training would also be productive.

23. Music as a programme of its own has perhaps less generally been exploited to advantage. Music not only attracts the audience it also provides filler time with cultural substance. In Bhutan, given the limited availability of other means of acquiring or hearing music, this programme component assumes greater importance as the station directly or indirectly can influence the trends of and the tastes for local music. An earlier consultancy also stressed this point and suggested the formulation of a national music policy. While a formal policy might be premature, certainly the station does have this responsibility and a vital role to play in influencing the appreciation of cultural and modern music, all the more so as a well equipped music studio has been installed and professional field recording equipment been provided.

24. The original project document states that "The broadcast service will be developed to suit the Bhutanese philosophy and to make it a powerful tool of communication in support of the development of the country." The mission believes that significant progress has been made in production techniques, but that there is still need for further concentration on the issues of development and their treatment on radio.

AV Library and Archives

25. From two previous technical missions, the Hypercard software on the newsroom's Macintosh computers has been programmed for the scripting of programmes and news with simultaneous documentation facilities. In other words, the very act of filing a news story or feature programme stores it in a database for later retrieval. Although at the start, the news team used the Hypercard programme for several weeks, they were unable to print the stories for reading on air, and soon abandoned this operation. One member of the mission showed how the stories could be printed, but without the file information, and particularly the running time. But Hypercard should be able to print the whole file. The problem, likely the source code in the printer file, is being looked into.

26. The technical missions also recommended an autonomous heavy-duty computer to act as full-time file server. This was delivered to the project in 1993, but not yet installed. There has not been therefore any full utilization of the computer facility and the databank. And until all computers are fully networked to the server, including the library and archives, full advantage of the systems cannot be had.

27. The mission was therefore pleased to learn that BBS plans to appoint a person in charge of Computerized Information Systems, that is, responsible for all computer work in BBS, to include the Hypercard news/programme databank and all future data for research. Once nominated, this person should be able to organize, coordinate and monitor all work on computers for the advantage of all users. Some further training and operational monitoring may be needed. Compared to previous years, there is now a growing group of computer technicians and experts able to assist and service at least basic computer operations.

Research and Evaluation

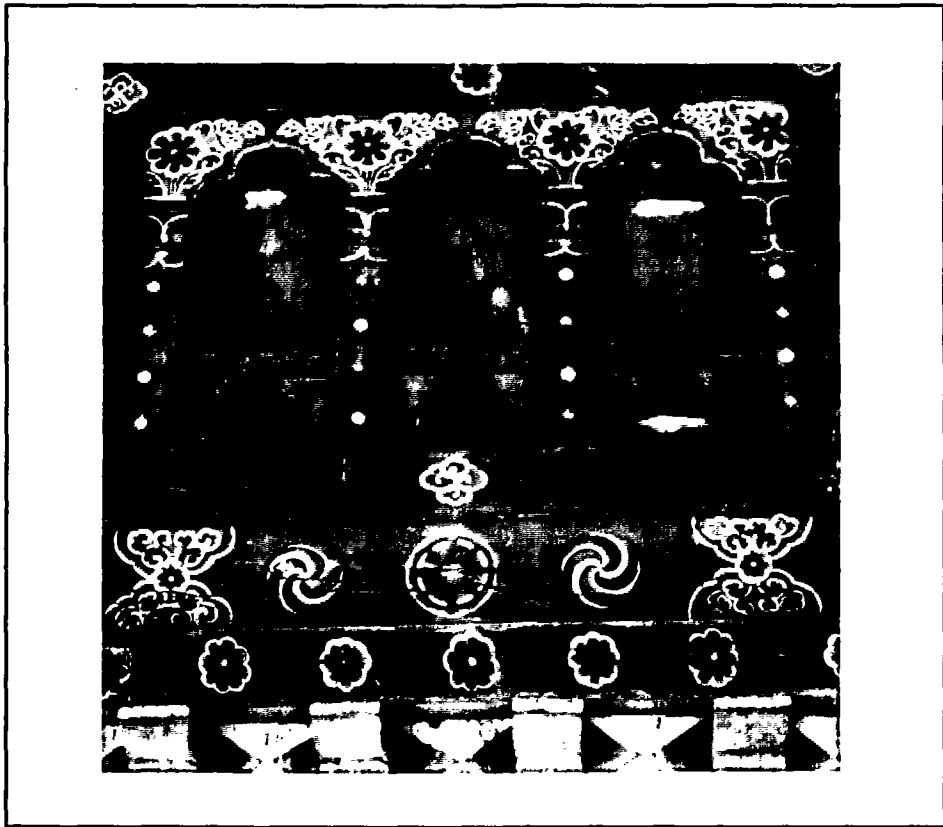
28. Time and again during the mission, reference was made to the need for research and its application to programming, and even to a basic understanding of the Bhutanese audience. One person has been trained in the basics of research work and some preliminary surveys (of doubtful validity) have been undertaken, but there has been no consistent and relevant research dimension in the work of BBS.

29. The mission therefore welcomes the decision to appoint at the earliest possible time a person who is capable of relating the research needs of BBS to those research and statistical offices that can include these questions in their surveys. The implicit policy therefore is that BBS cannot of itself undertake research, but should have a staff member capable of relating its research needs to those existing offices and agencies that are capable of doing field research. Guidance will be needed in preparing a basic research plan and in coordinating BBS research with those statistical and research offices that can lend their support.

Technical Operations

30. There can be little doubt that the introduction of an FM service to the Thimphu valley was one of the most successful aspects of the current phase of development in BBS. It has been stated by both the Executive Director and the Chief Engineer that the long-term future of radio in Bhutan will depend heavily on the extension of FM services to as much of the country as possible. An experimental link to the south has already been set up, and plans are under way for a network linking the capital to Tashigang and other towns. There is a strong case for this network to be entirely implemented by FM broadcast links installed by BBS technicians themselves. By doing it this way the whole country will gradually be covered by FM, instead of just specific towns.

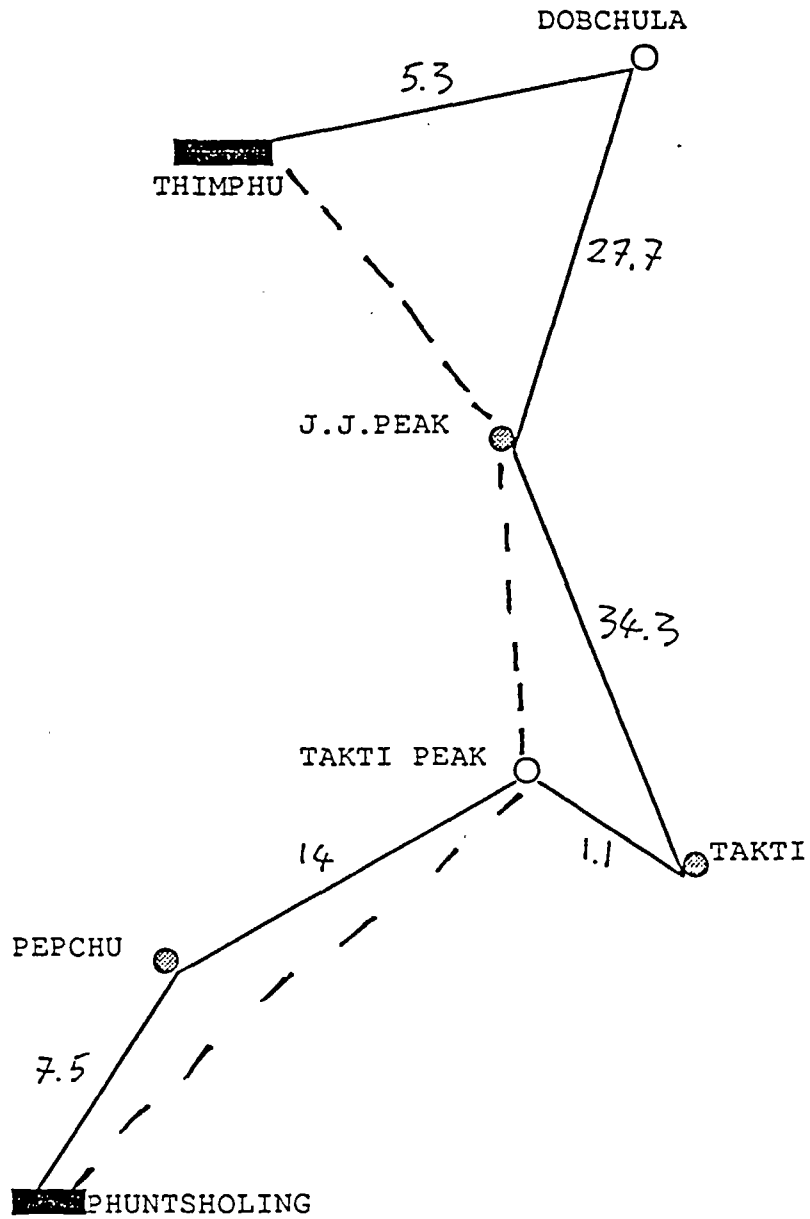
31. During the review mission several technical areas were examined, including the options for a national FM network and improvement of the existing shortwave service. Work was also done towards the improvement of computer usage in BBS and the extension of digital links with other countries.



Sculpted wood and painted designs depict traditional symbols on many houses -- an art form that risks vanishing in the face of modernization. *Photo UNESCO/CAA/93*

Sketch 1

PLAN FOR THE INSTALLATION OF FM TRANSMITTERS
AT PHUNTS HOLING USING FM RELAY LINK.



NOTE:

● ACTIVE REPEATER

○ PASSIVE REPEATER

■ TERMINAL SWITCHING STATION

32. A considerable amount of time was also spent answering questions which the technical staff had about tape recorders and other studio equipment. There seems to be a considerable gap between theoretical training and practical understanding, and it was useful to go over many of the subjects which had caused problems in maintenance work.

FM relay system to Phuntsholing

33. The old analogue microwave system which provides the telephone link between Thimphu and India is routed through the southern city of Phuntsholing. As may be seen from the drawing (see Sketch 1) this microwave link uses three active relay stations and two passive reflectors on mountain tops. It was a natural first step to consider this path as a way of reaching the south of the country for a broadcast link. The Chief Engineer of BBS planned the FM link to Phuntsholing by the same route but because of the lower frequencies involved it proved possible to eliminate some of the stages. VHF broadcast signals do not follow a strict line-of-sight in the same way as microwaves.

34. The 100 Watt FM transmitter at the BBS studios in Thimphu valley can be received directly at the Jarjekha microwave station. This is a large, manned installation with its own generator as well as a power line. While it does not have a direct line of sight to Paro valley, the old microwave station at Jarjekha is a better site for the relay to the south than the very top of the mountain. An alternative site on the peak was considered but it is problematic. There is a civil aviation beacon (VOR) on the summit and this operates on a frequency of 108.4 megahertz, which is very close to the FM broadcast band. Since this beacon is not just a transmitter but a sensitive measuring system it would be unwise to install a powerful transmitter close to it.

35. From Jarjekha a 100-Watt FM relay transmitter reaches the next station at Takti Peak. Here an older generation 10 Watt transmitter has been used because that is all that was available, and this can be heard weakly in Phuntsholing. A 100-Watt transmitter in the town itself forms the final stage of the link.

36. This relay system was planned and executed by the BBS engineering staff before the consultant arrived. There was little to add to what they had achieved, other than minor comments about details. The work left to be done was very limited and it was confidently predicted that it would be theoretically possible to formally open the service on His Majesty's birthday, 11 November 1993. It should be pointed out that this installation has used up all of the new equipment which was supplied in July of this year plus one of the four old 10 Watt transmitters held in stock. This leaves the project perilously short of back-up equipment. The original UNESCO 10-Watt FM transmitters are still serving well under the skilful control of the BBS technicians, but they are definitely not recommended as equipment for

new projects because they are more complicated and less reliable than current designs.

Linking Thimphu to Tashigang.

37. The new digital microwave network linking the eastern cities to the capital has plenty of capacity in reserve. Based on a 36 MHz bandwidth, it has 100% redundancy which means that double this amount is potentially available. Superficially it would appear to be an ideal means of carrying high quality sound links across the country.

38. The problems however begin when one considers the cost of digital terminal encoding and decoding units for broadcast quality sound. There is a very limited choice of manufacturers of this type of equipment and it is nearly inevitable that it would have to be purchased from NEC, who supplied the major part of the microwave network.

39. The cost of this terminal equipment would be in addition to the rental of the digital circuits. It is likely that because of the way the network is designed it would be necessary to rent more capacity than will actually be used. The Telecom Department has not committed themselves to a specific tariff for these lines but has indicated that it would be comparable with European rates for the same service. The total cost of this system is therefore sufficiently high for one to think hard about other options.

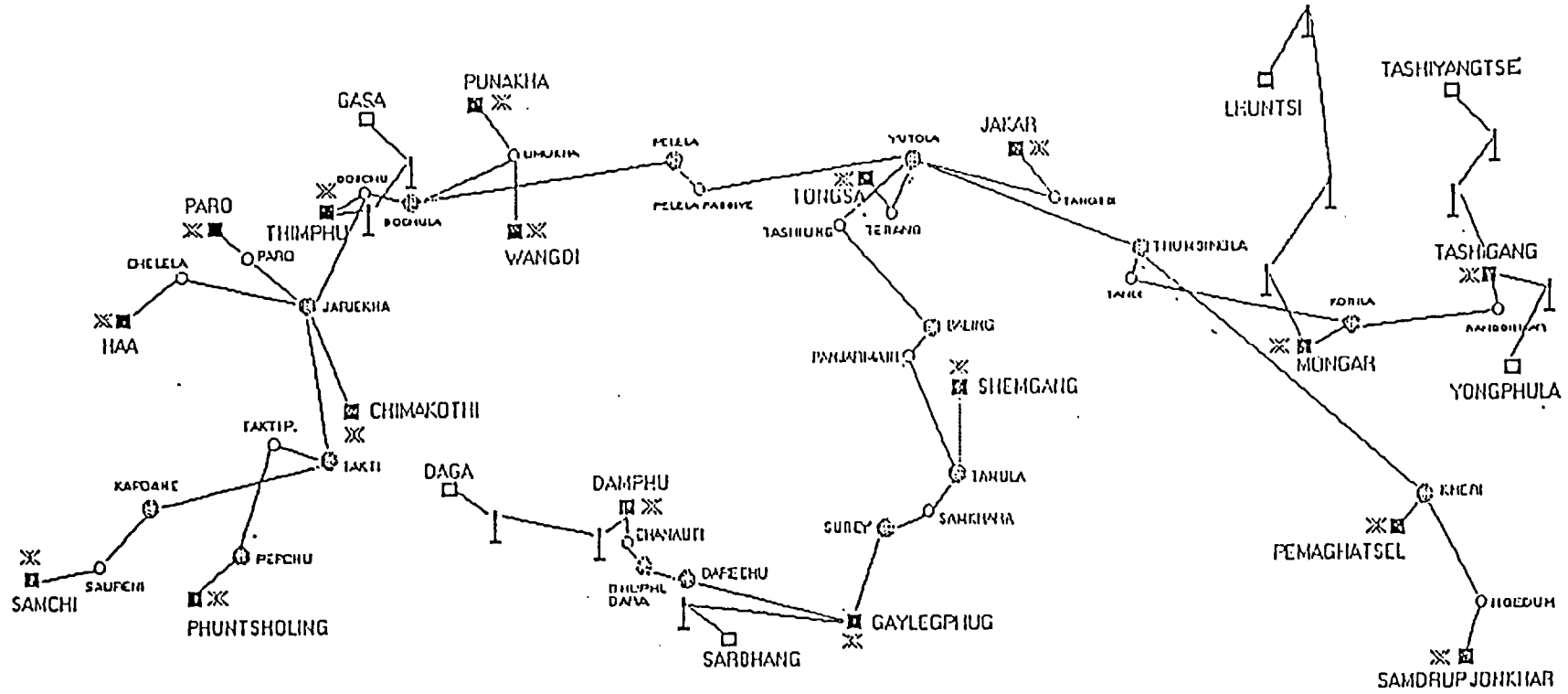
40. The major alternative to use of the digital microwave system would be to install a chain of FM relay stations spanning the country. These could be sited for the most part at the same locations as the microwave stations, using the same masts and buildings. The Telecom Department has indicated its willingness to allow this. In order to link Thimphu to Tashigang five relay stations would be needed, plus a broadcast transmitter for Tashigang itself. In order to reach the first of these relays, a transmitter would be needed at the shortwave station above Thimphu valley. This would also provide a better service for the extreme ends of the valley. The original transmitter at the studio would be retained in order that a limited service could still be provided in the event of a failure at the shortwave site.

41. The capital investment and running costs of such an FM relay system would both be lower than the microwave alternative. It would have the major advantage of providing FM coverage to all the communities along the path of the link as well as to the final destination.

42. The FM option therefore looks attractive, and consideration should be given to the detailed planning of its implementation. The major problem will be the provision of reliable power supplies to all of the relay stations. None of the sites has truly reliable mains electricity. Although some of them have generators, there is no guarantee that these will be run whenever the mains fails. The microwave systems have their own standby batteries with a reserve of several days' capacity. The batteries are not large

NATIONAL TELECOMMUNICATION NETWORK

Sketch 2



enough to provide standby capacity for broadcast links as well, but the generators will not normally be started until they are running low. In these circumstances it is clear that the broadcasting power sources have to be fully independent.

43. When solar power systems are specified, it is essential to be absolutely pragmatic about the use of energy. The transmitter must be of the lowest power which will serve the function reliably. In order to operate FM links over the distances involved it will be necessary to use either 100-Watt transmitters or elaborate antennas. It would definitely be a better engineering approach to use 20 Watt transmitters with large antennas wherever possible. This way the solar power systems can be reasonably small. The use of high-gain antennas would mean that the signal would be confined to a narrow corridor between the link sites, but in fact this is not a significant disadvantage because most of the inhabited areas are within the beam.

44. There is no doubt that this is a large project for the technicians of BBS to implement. While the BBS technicians have the competence to do this, it is worthwhile considering other ways in which a reliable programme feed, even one of limited quality, could be provided to Tashigang. The Director of Telecoms has generously offered the use of a single telephone-grade circuit free of charge for an unspecified period. It may seem a strange idea to start an FM service based on a telephone-quality link, but in fact this would immediately give a far better service than is presently available on shortwave. This could be both a fast way of starting an FM service in the east of the country and a standby feed in case of problems on an eventual all-FM link.

Spur links to Punakha, Wangdi and Paro.

45. There are at least three minor projects which deserve consideration alongside the planning of an east-west FM backbone link. Assuming that there is a relay station installed at Dochula, which would probably need to be of 100 Watts, this could be received weakly in both Punakha and Wangdi valleys without further relays. Tests undertaken by BBS technicians with a mobile 100-Watt transmitter have already confirmed this. It would need only a final broadcast transmitter in each of these valleys to complete a public service for them.

46. In the case of Paro, a low power link would be needed on Jarjekha Peak as well as a 100-Watt transmitter in the valley itself.

Equipment requirements

1) Back-up equipment for the link to Phuntsholing

- 2 complete sets of spare equipment

Estimated total cost \$12,000

2) Equipment for the link to Tashigang

- 7 22-Watt FM transmitters
- 3 100-Watt FM amplifiers
- 7 relay receivers with automatic switching
- 5 solar power units
- 12 high-gain antennas with cables etc.
standby equipment and spare parts

Estimated total cost \$ 70,000

3) Equipment for spur links to Punakha, Wangdi and Paro

- 4 22-Watt FM transmitters
- 3 100-Watt FM amplifiers
- 4 relay receivers with automatic switching
- 1 solar power unit
- 4 high-gain antennas with cables etc.
standby equipment and spare parts

Estimated total cost \$ 30,000

Local assembly of equipment.

47. Throughout the project there has been an emphasis on the principle of local manufacture. This started with the UNESCO solar receivers and continued with the FM transmitters. The technical skills certainly exist in the country to do this work, but it was found that the technicians are already heavily occupied with their normal duties, and do not have time to take on additional tasks. Their experience with FM transmitters has been sufficient to make them proficient in their maintenance. Not much would be saved or gained by assembling transmitters from components. In fact the major task for the technical staff is to plan the effective use of the equipment with which they are already familiar.

48. On the other hand there are some projects which have arisen during the course of working with BBS that really should be developed. For instance there are a large number of audio monitor amplifiers provided by the Indian project, which are giving trouble. These could easily be re-built

to a more modern design within the existing cabinets. It would be a good idea to supply parts and designs for this work to begin. This is a good example of 'constructive maintenance'; upgrading equipment which is poorly designed rather than continuing to repair it. This principle could apply to several other aspects of the building, technical environment and some items of equipment.

Short wave transmission

49. One of the most important factors limiting the effective range of the BBS shortwave transmission was a strong interfering signal very close to the operating frequency of 5025 KHz. This signal appeared to come from China, and caused an annoying whistle on the transmission, even close to Thimphu. Fortunately the problem was easily solved by changing the main shortwave frequency to 5030 KHz. Improved reception has already been reported from all over the country.



Singing is natural, whether for pleasure or for prayer. Tashi Dhendup is not leading the choir but recording for the next programme. *Photo UNESCO/CAA/94*

50. The 50-KW shortwave installation had no provision for a standby transmitter until BBS staff themselves fitted the old 10-KW unit. This is in rather shaky condition but remains operational. They have also erected a standby antenna for use with this transmitter. During the mission some time was spent improving the tuning of this antenna. The work consisted of building quarter-wave matching stubs to correct for impedance differences between the antenna and the feeder. Unfortunately while this procedure was being undertaken, the standby transmitter developed a fault which took several days to diagnose. It has a large number of weaknesses in the original design, and these have been made worse by repairs of various levels of effectiveness over the years.

51. It is too early to tell whether there will be serious problems in maintaining shortwave output. The technical staff are certainly doing a good job with the equipment at their disposal. It is, however, disturbing to note that they had been trained only in operational procedures for the big shortwave transmitter, and not at all for maintenance. One day was spent going over the principles of operation of the system and this appears to have given several of them their first insights into how it actually works. What can certainly be said is that the development of the FM network will take away some of the burden of responsibility currently loaded on the shortwave station.

Computer communications and news links.

52. The electronic mail system which has linked BBS so successfully to its European consultants has now been upgraded to the latest higher speed version. At the same time an account has been established with GreenNet in London to give BBS access to the global electronic community of the Internet. It is believed from discussions with the Director of Telecommunications that BBS is still the only organization in Bhutan using regular computer links to the outside world.

53. One of the potential uses for this connection is the transfer of news reports both into and out of BBS. Low-cost computer networks which are now springing up all over the world can supply large volumes of information for the cost of a short telephone call to a nearby country. In particular, International Press Service (IPS) has now set up a computer centre in Manila which aims to provide low-cost news feeds to community-oriented media in Asia. BBS news staff have seen some of their material and find it very appropriate to their needs for a better regional news source. The World Community Radio Association (AMARC) has negotiated special discounts for their member stations to subscribe to IPS. The details of connection to this service are actively under consideration.

54. The Reuters satellite news feed to *Kuensel* was inspected during the mission. While technically it would be possible to share this connection, contractually Reuters insists on an entirely separate subscription, which is

prohibitively expensive. The alternative of a daily telephone connection to Manila of a few minutes seems more economical. The cost would be about \$3000 for a dedicated mid-range desk computer and \$600 per year for the communications. This would give access to at least fifty stories each day and would simultaneously give the chance for news items to be sent out from Thimphu.

55. Quite apart from access to incoming regional news, the computer connections which have already been initiated can provide a good opportunity for the Bhutanese point of view to be heard outside the country. It is to be hoped that BBS will take the initiative to post bulletins about national events to information systems which will distribute them internationally. So far the station has not developed any policy in respect of relations with other broadcasters in the region, nor of external broadcasting or submission of news to international agencies. This is despite the fact that BBS has regular listeners in Nepal, India and as far away as Japan. Whether or not it falls within the perceived terms of reference of the station, BBS now has a good opportunity to correct this imbalance.

III CONCLUSIONS AND RECOMMENDATIONS

56. During the last year, a new self-confidence and a firm continuation of broadcasting operations have been observed in the new autonomous media organization. In the recruitment of new personnel (and the separation of unfit staff), in financial operations and management decisions, indications of a new trend towards independence and professionalism has been shown. Within the limitations of personnel and resources, there has been an increased orientation to development issues in programmes, and this is shown especially in field productions. Technical operations have been sustained and the first steps towards expanding the FM network to Phuntsholing have been taken.

57. BBS has also shown its potential role in influencing the development process in Bhutan and in linking general cultural themes to programme production, particularly in the use and development of the official language, Dzongkha. Radio should thus be used more effectively as an active mechanism of dialogue between government and people, to facilitate articulation and exchange of views and opinions on issues of local national and international concern. In the endeavours of His Majesty and the Government to modernize society, BBS has a crucial role in encouraging more popular participation in decision-making. But success in this domain depends on professionalism, and therefore further training and skills are needed.

58. Further necessary improvements must also be made in the areas of: programme substance, news handling and evaluation, diversification of news sources, utilization of technical facilities to meet the long-term objectives of the project. Field productions should include programmes related to district and gewog fora, local cultural events, and features concerning women in development. Aside from programmes on and by women, all programmes should reflect a concern for women as a viable and contributing partner to the development process. The computer networking and operations, should be completed; priority should be given to starting the library and AV archive operation.

59. Judging from the achievements, BBS can continue this work in the future on its own, but only with great difficulty without external support. Training of staff, advanced training for senior staff and acquisition of technical equipment and spares cannot be done without further assistance; conversely, without this support, the advances made so far may, in the near future, weaken or even deteriorate.

60. Based on the firm groundwork laid by the project and particularly in view of the renewed dynamism shown by its Executive Head under the new autonomous status of BBS, there is ample justification to forecast continued development of the radio station along the general orientations indicated in this report, in spite of the difficulties it has for a large part already overcome.

61. It is therefore strongly recommended that substantial external support be continued for a period of two to three years and an appraisal mission be organized to write a project proposal based on the findings of this report and the recommendations put forth by the Tripartite Mission. The areas to be covered by external assistance should include human resources development, technical support, FM network development.

Tripartite Recommendations

62. In view of its findings, the Tripartite Mission met in Thimphu on 13 September and recommended:

I. Programme operations

a) that continuous training be provided in journalism (news evaluation, advanced methods of news writing, news presentation), and programmes oriented to development issues; and that this training be provided for news and programme producers, as well as for stringer correspondents on field assignments; and that appropriate communication equipment and facilities be provided for this;

b) that advice and training be provided in management operations, particularly in the areas of marketing, professional ethics and developing station policy;

c) that as facilities develop, a BBS staff officer for news and programme be appointed to Tashigang;

II. Informations Systems

d) that a suitable candidate be appointed to the position of head of Information Services, comprising the networked computer services for programme creation, library cataloguing and documentation (of news programmes and cultural music), and databases for research, and that this position be a professional position; and that a research officer and librarian be appointed under this officer;

e) that the need for a resident consultant/trainer in this field be explored, to assist in strengthening and developing this system until it can be operated and expanded solely by BBS;

f) that investigation be made for the eventual installation of on-line computer access for news sources, broadcasting data and other informational purposes.

III. Technical Operations

g) that the shortwave transmission be strengthened and the FM transmission service be expanded as part of the overall broadcasting development strategy;

h) that cost-effective technical equipment be acquired to enable the development of broadcast services as described above, including transmission and production spares, supplementary production equipment and computers.

i) that a training programme for engineers be drawn up and implemented;

j) that a system of obtaining regular advice and consultation on technical operations be worked out and implemented;

IV. Professional Relationships

k) that BBS seek to develop close working relations with professional organizations, for example the World Association of Community Broadcasters, Asia Pacific Broadcasting Union, the Asia Pacific Institute for

Broadcasting Development, the Asian Centre for Mass Communication Information and Research, Press Foundation of Asia and other relevant press institutes and organizations in the region;

l) that BBS maintain and strengthen its cooperative links with *Kuensel* and other relevant media organizations in the country;

V. International Cooperation

m) The UNESCO/DANIDA Funds-in-Trust Project implemented by UNESCO and DANICOM, must be credited for having substantially contributed to the present professional status of Bhutan Broadcasting Service. Whether this multi-bi set-up is the right one for future assistance will have to be looked into more closely, taking into consideration the present situation of BBS, the station's policies in its autonomous situation, and the external assistance policies of the Government of Bhutan. The international network and media expertise of UNESCO have to be weighed against the flexibility of bilateral assistance, and in this case the heavy involvement of Danicom.

ANNEX I

Terms of Reference for 510-BHU-61 *Development of Bhutan Broadcasting Services*

The dates for the tripartite review have been confirmed: 8 to 16 September 1993.

The TPR mission is composed of Ms Lys Garval representing Danida and Carlos A. Arnaldo, representing UNESCO. The Government shall be represented by Mr Sonam Tshong, Executive Head of Bhutan Broadcasting Corporation. A technical consultant, Mr Martin Allard shall be on mission at the same time (final technical input to the project) and shall serve as resource person for technical questions; upon request, he may provide elements for the Tripartite Report. Other staff members of BBS and relevant Government officials shall also be available for discussions and decisions as required, in particular the management staff and heads of relevant Government services, in particular Telecommunications.

To facilitate the work of the mission, an in-depth evaluation has been undertaken by an external consultant (Jan Servaes) to provide detailed observations of project progress which should be confirmed and/or nuanced by the Tripartite team. The mission's principal output shall be a report and a set of recommendations to be considered by the three parties.

The terms of reference are as follows:

Objectives of the review:

1. Assess whether the project has achieved both the immediate and the development objectives as stated in the project document.
2. In function of this assessment, propose considerations for future action on the part of Government, UNESCO and Danida. This shall be formulated in a set of recommendations to be included in the report.

Scope of the Review:

The Tripartite Mission's work shall include but not be necessarily restricted to the following:

A. *Assess the the achievement of the long term, development objectives of the project, as stated in the Project Document, namely:*

"1. To catalyze economic development and social improvement through a comprehensive, efficient national broadcasting service transmitting programmes on current events and social awareness, agriculture and community development, health, education, culture and religion.

2. To encourage the participation of the people in formulating plans, taking decisions and undertaking activities oriented to social and economic development.

3. To inform the people about Government policies, programmes and activities, to make Government aware of the people's conditions, needs and aspirations.

4. to weld together isolated communities and differing cultures into a national identity.

5. To spur the development process."

These objectives were formulated in the context of the Fifth National Plan and they also reflect the tenor of the Sixth National Plan.

The mission shall assess achievements in terms of the immediate objectives as stated in the project document and how these have contributed, or not, to the development objectives:

1. To reinforce the national broadcasting system.

(Review the establishment and expansion of production and transmission facilities for an efficient and independent broadcast operation, with project inputs complementing those provided under the larger Indian bilateral project.)

2. To integrate the FM services in Thimphu and Phuntsholing into the national broadcasting system.

(Examine the use made of FM transmitters and how this experience has contributed to the eventual network.)

3. To evaluate the FM services and study the feasibility of possible expansion.

(Assess the preparations for the eventual microwave system and ways of relay by FM transmission to remote sites.)

4. To train producers and technicians in new programming methods and production techniques.

(Assess the quantity and relevance of the training given under the project, for both programme production and technical operations; identify possible backlog and wastage through attrition and transfer to other government services; attention should be paid to the strictures of the civil service regulations and how the newly autonomous station should structure its own recruitment.)

5. To develop new programme formats.

(Review programmes to examine the variety of formats, the quality of production, particularly news and current events.)

6. To introduce evaluation and research activities to support programme production.

(Examine the progress in audience research work and studies to establish profiles of listener groups; appointment of a full time research officer and provision of an operational budget)

7. To establish recording, duplication and distribution facilities to promote local music.

(Review the use made of portable field production facilities; how traditional music has been recorded, documented and archived for productions; assess the quality and contribution of these music recordings to overall BBS programming.)

8. To organize a news pool with the national newspaper, *Kuensel*.

(Examine the progress in the organization of the combined Bhutan Radio-Kuensel news pool and how this operation can be improved and further strengthened, if the findings minimize the danger of its limiting the selection of news; assess how the autonomous statutes might affect this relationship.)

9. To set up a small assembly workshop for the design and assembly of FM transmitters and of SW/FM solar powered radio receivers.

(Examine the use made of the FM/SW radio receivers contributed by the project and the advance made in FM transmitter operations and maintenance.)

Additionally, the mission should review and assess:

-- the progress in establishing a computerized library and archives system for news and sources of information; and how this is operationally linked to news and programme scripting.

-- the involvement of women in the project (as staff, as active listeners), and the number, quality and relevance of programmes addressed to women and young girls;

2. *In the light of the above assessments, and especially in view of the new autonomous statutes granted to BBS, the Tripartite Mission should discuss any future requirements and propose future actions to be taken on the part of the Government , UNESCO and Danida.*

In anticipation of the review, and based on the Servaes evaluation report, the following might be considered:

-- assistance in formulating liberal media legislation promoting independent and pluralist media;

-- short-term training in management, programme production, technical operations, advertising and revenue earning, broadcasting policy;

-- technical assistance for linking the nationwide microwave system to FM relays.

3. *The Tripartite report will be prepared by the UNESCO Mission member and a draft will be provided to DANIDA and the Government of Bhutan for their approval. Upon completion, the Tripartite Report shall be submitted officially by UNESCO to the Government of Bhutan and DANIDA.*

ANNEX II

ORGANIZATIONAL STRUCTURE As of February 1992.

<i>SUPPORT</i>		<i>NEWS</i>		<i>PROGRAMME</i>		<i>TECHNICAL</i>	
Audience Researcher	1	Coordinator	1	Coordinator	1	Deputy	
Transport Officer	1	Editor	2	Progr. Ex.	3	Engineer	1
Receptionist	1	Reporters	3	Producers	12	Asst. Eng's	3
Drivers	3					Jr. Engineers	4
Typist	1					Technicians	6
Peons	3					Study Leave	3
Security	3						
Chowkidar	2						
Sweeper	2						
	16		6		16		17

Total Staff 55

(Does not include 6 part-time presenters, 4 part-time translators and 12 stringer reporters in the various provincial districts)

**ANNEX III
BBS Programme Log**

TIME	MON	TUE	WED	THU	FRI	SAT	SUN
1700 - 1915	DZONGKHA	DZONGKHA	DZONGKHA	DZONGKHA	DZONGKHA	DZONGKHA	DZONGKHA
17.00	Introduction	-	-	-	-	--	
17.35	Songs	-	-	-	-	-	
17.55	Music Moves	Childrens Mag.	Cultural	Calling Children	Historical	Rural Mag.	
17.59	Nation Building	-	-	-	-	-	
18.00	News/Announcement	-	-	-	-	-	
18.15	Request Show	Topical	Dev (Quiz)	Spiritual	Week End Round Up	Feature.	
18.45	Dev (Health) Prog.	Request	-	-	(6.15 - 6.35)	Request	
19.05 - 7.15	Dev(Farmers)Prog.	-	-	-		Dev (Farming)	
17.15 - 1945	SHARCHOP						
17.15 - 17.30	News/Announcement - Dev(Health)	-	-	-	-	-	
19.45 - 2015	LHOTSAM						
19.30 - 19.45	News/Announcement - Dev(Health)	-	-	-	-	-	
20.15 - 2100	ENGLISH						
20.15	News/Announcement -	-	-	-	-	-	

SUNDAY

10.00 - 1400	Dzongkha
10.00	Introduction
10.10	Children's(Tuition)
10.30	Guest of Week
10.55	Request
12.50	Retail Price
13.00	News/Announcement
13.15	Feature News items
13.25	Request/
14.00	Scarchop
14.00	News/Announcement
14.15	Request
14.30	Lhotsam
14.30	News/Announcement
14.45	Request Show
15.00	English
15.00	News/Announcement
15.15	Request Show

ANNEX IV

An Abbreviated History of Radio in Bhutan by Sonam Tshong, Executive Head, BBS

On 11 November 1973, members of the National Youth Association of Bhutan commenced the first radio broadcast in English and Dzongkha on an amateur and voluntary basis, using the Civil Wireless Department's 400 watt shortwave transmitter during its off-hours in the evenings. Though limited to a weekly 1-hour transmission, Radio NYAB (as it was then called) immediately caught the imagination of all Bhutanese, young and old, who looked forward to their Sundays with radio. Though the operation was modest and totally voluntary, it was a proud moment for Bhutan. Among those pioneers were Tashi Phuntsog (formerly Director of Information and Broadcasting and currently Secretary of the National Parliament); and Ms Louise Dorji (formerly Deputy Director of Bhutan Broadcasting Service, now retired).

As expectation from its listeners increased over the years, Radio NYAB found itself unable to run on a permanent basis solely on goodwill and enthusiasm. Financial, personnel and technical issues became more important than programme content and in 1979 the station became a part of the Department of Information and Broadcasting. Broadcast hours were increased to 9-hours a week (ie. 3 hours daily on Sundays, Wednesdays and Fridays).

On 2 June 1986, the old 400-watt shortwave transmitter was replaced by a more powerful 5-kilowatt SW transmitter and Bhutan Broadcasting Service was officially launched in place of Radio NYAB. In preparation for this, UNESCO under a UNDP project for Human Resources Development (1984 to 1987) provided fellowships and study tours to enable the new staff to run the station professionally. Concurrently, 1986 to 1988, under two phases of an IPDC (International Programme for the Development of Communication) project (350-BHU-71 and 350-BHU-91) field recorders, microphones, mixers and an experimental FM transmitter were provided. This production equipment enabled BBS to maintain its programmes and stay on the air. The FM transmitter was used for experimental transmission in the Thimphu valley and often remained on air, when the shortwave transmitter developed faults.

From both transmission and programme production view, the culmination of the transition of BBS from an amateur hobby status to a full-fledged professional national radio station came in 1991 for two inter-related reasons. On 15 March 1991, the new 50-kilowatt shortwave transmitter and studio complex built in Thimphu under bilateral cooperation with the Government of India, was successfully commissioned, thus heralding a new era of professional broadcasting in Bhutan.

At the same time the Indian project was progressing, UNESCO and Danida approved a multilateral project which greatly facilitated the dramatic switch-over to a high power radio station. This project began in June 1989 and was provided US\$ 1.137 million over a four-year period (Project 510-BHU-61 Development of Bhutan Broadcasting Service)

Though there were certain components of the project that could have been more efficiently utilized, this project was important to BBS for two reasons. It enabled the staff of the new station to be professionally prepared to take-over the new 50-kilowatt radio station complex as scheduled in March 1991.

More important, the project provided invaluable access to production and management skills commensurate with international standards. This was crucial when one considers the fact that up to the days of the 5-kilowatt transmitter, BBS's programmes were still run mainly on an amateur and voluntary basis; the staff at that time were totally unprepared to manage the new station. As a matter of fact, cognizant of this, the Indian Government offered to run the station and produce all programmes for BBS. The staff and its management, however, opted for training under the UNESCO-Danida project and to accept the challenge to run their own station.

By the time of the first mid-term tripartite review of the project held in May, 1991, the mission reported:

"Notable achievements were demonstrated in production techniques, technical operations, field recording, news organisation and production. There was also a noticeable smoothness in most operational procedures. . . In view of the transfer from makeshift to disciplined production and operational techniques in a new environment, the staff appeared to have quickly accommodated to the new routines and to the atmosphere of a professional broadcasting outfit."

ANNEX V

Proposals for Future Development by Sonam Tshong, Executive Head, BBS

Bhutan Broadcasting Service is poised to revise and improve its broadcasting strategy in a phased manner commencing with the Bhutanese New Year, February 1994 in the spirit of editorial and managerial autonomy. It is expected that the several changes will affect production formats and techniques, studio operations, production and transmission technology, and the revamping of support services.

As an autonomous, independent media organization, the radio station has to be both credible and supported by the public. Credibility and popularity can be sought through a combination of technical and production techniques. Production wise, it must include adequate local and regional stories with factual accuracy and objectivity. Those programmes dealing with seasonal activities must be timely and seek to encourage wide participation of the populace.

Technically, BBS must be able to transmit clear signals on shortwave or FM, to the entire Bhutanese population, and without causing interference with other stations in the region. To increase listener coverage, suitable radios must be made widely available at reasonable cost and with adequate after-sales service facilities,, based on experiments already undertaken during the project.

To achieve these objectives, BBS seeks specifically to improve operations in the following areas:

1. *Production techniques and formatting development*

The goal will be to present two Dzongkha and two English newscasts per day; newscasts and programmes in Sharchopkha and Lotsamkha will have an improved, specific orientation to these audiences. Where appropriate, arrangements will be made for productions to be made by outside sources, thereby diversifying programme sources and views. For cultural and musical programmes, special efforts will be made to invite guest artists and speakers.

2. *Consolidation of sub-national news and information service*

Attention will be focused on stringer reporters to select the more competent and offer further incentives; regular training sessions will be scheduled for these field staff. On an experimental basis, BBS will seek to recruit a special producer/reporter to be stationed in Tashigang.

3. *Technical hardware development and consolidation*

Investigations will continue on the expansion of FM transmission to Phuntsholing and to Tashigang. As appropriate studies will be made of using digital transfer technology, to make best use of the microwave system, but within economical means. Further studies need to be made on more efficient shortwave transmission using economical power and antenna configurations; provision must be made for long-term maintenance and acquisition of spare parts. There is also urgent need for installing a standby diesel generator for powering the transmitter during electricity cuts.

A second on-air studio has to be provided by converting one of the present recording studios. As technology advances, examination will be made of new digital recording techniques which not only provide higher quality recording, but also may be lower cost in the future.

4. *Library, archiving and information systems development*

It is foreseen to appoint a high level officer responsible for Computerized Information Services, to be supported by a librarian and a research officer. Links will be made to research services in the country; improved use will be made of the computers for databases and analyzing research findings.

5. *Music development*

Traditional and modern Bhutanese music will be supported by BBS through its programmes, and particularly through the systematic invitations to guest artists. Documentation and Library services will be called upon for preparation of clear information on music development in the country.

6. *Human resource development*

A comprehensive human resources development programme will be formulated comprising:

a. courses in language skills for English-speaking and Dzongkha-speaking staff who have shown consistent competence; new applicants with only mono-linguistic abilities will be discouraged from joining.

b. in-country and study tours for improving journalism, production skills, technical operations both production and transmission.

c. in-country management training, to include marketing and business techniques.

7. *Logistic support consolidation*

There is urgent need to establish and maintain contact with stringer reports and ensure constant communication. Various ways will be studied, including fax, email and SSB. It is also estimated that four additional vehicles will be needed to ensure services to the nearby districts.

8. *Strengthening of management system.*

Aside from strengthening the second line of management, it is also foreseen to review management practices and work towards procedures that reflect the spirit of operational autonomy, financial viability, accountability, and personnel regulations (rewards and sanctions). In the same spirit, BBS will work on a code of ethics and standards for journalists, as well as safety measures for technicians. The inventory system will be improved using computerization.