

ブータン国  
国営放送支援プロジェクト  
終了時評価調査報告書

平成20年3月  
(2008年)

独立行政法人国際協力機構  
社会開発部

社会
JR
08-037



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## 序 文

ブータン国営放送局（BBS = Bhutan Broadcasting Service）は 1973 年に National Youth Association of Bhutan によるラジオ放送からその歴史をスタートしました。その後 1986 年に国営ラジオ放送局としてサービスを開始し、1999 年には首都圏ティンプーのみ限定した国営放送局としてテレビ放送サービスを開始いたしました。

我が国の BBS に対する協力は 1989 年 6 月から 1991 年 12 月までの青年海外協力隊によるラジオ番組制作指導に始まり、本格的にテレビ放送を強化し始めた第 9 次 5 カ年計画（2003 年～2007 年）中から積極的に支援してまいりました。

2003 年 6 月から個別専門家「TV 放送技術」の指導の下、手作り中継車の導入や TV スタジオの整備、放送時間の拡大（3 時間放送× 2 /日）など放送局としての充実を図ってまいりました。

しかしながら、国営放送が安定して、生活情報番組および教育の向上を中心にした番組制作を行なうには、制作スタッフを含め引き続き指導を行う必要があり、全国 TV ネットワークの配信においても、迅速で的確な情報を伝達するためには、TV 送信技術の確立および全国ネットワークの運用管理・監視体制の強化が必須でありました。

上記を踏まえ、2005 年 6 月に実施協議が行われ、日本国・ブータン国双方の責任分担や技術移転内容などについて最終的に合意した結果を協議議事録（ミニッツ）に取りまとめたうえ、署名を行いました。

上述の経緯を経て、ブータン国を対象とした「ブータン国営放送支援プロジェクト」は「国営放送の番組制作能力と情報提供機能が向上する」ことをプロジェクト目標として 2005 年 6 月から開始され、2 年間の協力を実施しています。

本プロジェクトは 2007 年 6 月中旬をもって終了することから、2007 年 1 月から 2 月にかけて終了時評価調査を実施しました。本調査においては、これまでのプロジェクトの実績及び実施プロセスを確認し、評価 5 項目の観点から終了時評価を実施し、プロジェクト終了までと終了後について提言を行うとともに、今後のプロジェクトに役立つ教訓を引き出す作業がなされ、これらについて協議を行い、結果をミニッツに取りまとめ、署名を行いました。本報告書は、この終了時評価調査に関する報告書です。報告書が関係者のみならず、広く一般の方にご覧いただき、活用されれば幸いです。

最後に、本調査団の派遣に関し、ご協力いただいた両国の関係各位に対し、深甚の謝意を表するとともに、あわせて今後のご支援をお願いする次第です。

平成 20 年 3 月

独立行政法人国際協力機構  
社会開発部長 岡崎 有二



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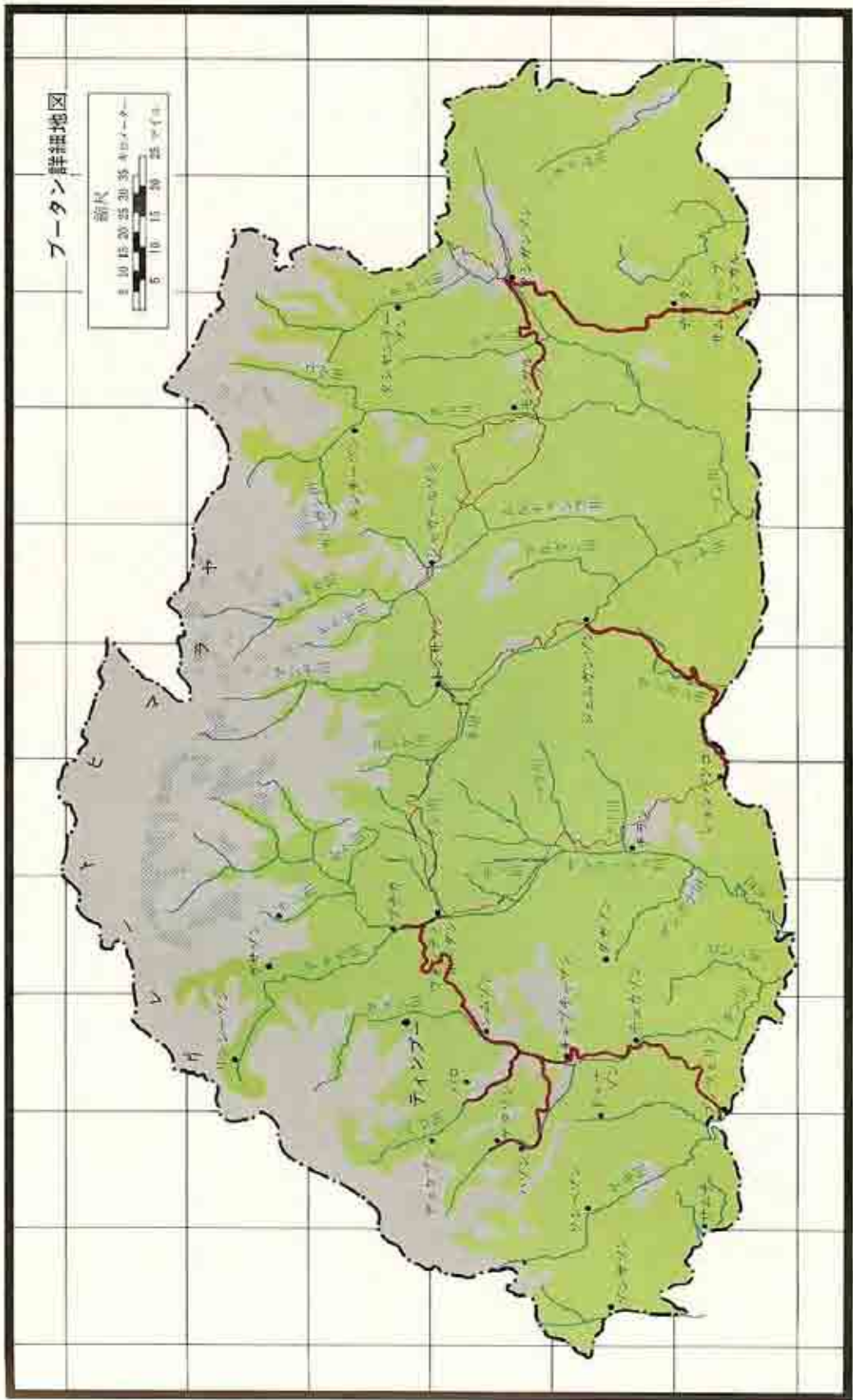
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2. 終了時評価調査 協議議事録 (M/M)、Joint Evaluation Report 2007年1月30日
3. プロジェクトデザインマトリックス (PDM) 日本語版
4. 調査資料
5. BBS 内放送機材構成図



地 図





# 写真



調査団とカウンターパートとの協議



供与機材について説明中の喜久村専門家



草の根無償資金協力で供与された車両  
(OB-VAN)



地方で収録された番組素材は手渡しで行  
われている



トンサ県 Rukubji 村に BBS と BICMA (放送  
の規制官庁) の共同パイロットプロジェ  
クトの一環で設置された衛星放送受信  
アンテナ



トンサ県 Rukubji 村にて村人のお祈りの  
場所であるラカンに設置してある共同テ  
レビ



## 略 語 表

AIBD	Asia-Pacific Institute for Broadcasting Development	アジア太平洋放送開発研究所
BBSC	Bhutan Broadcasting Service Corporation Ltd.	ブータン国営放送局
BICMA	Bhutan Information Communication and Media Authority	情報通信メディア庁
BT	Bhutan Telecom	ブータン通信公社
DADM	Department of Aid and Dept Management	財務省援助調整局
DANIDA	Danish International Development Agency	デンマーク政府開発援助機関
FPU	Field Pickup Unit	無線中継伝送装置
HRD	Human Resource Development	人材育成
ITU	International Telecommunication Union	国際電気通信連合
ITU-D	International Telecommunication Union Telecommunication Development Sector	国際電気通信連合 電気通信開発部門
ITU-T	International Telecommunication Union Telecommunication Standardization Sector	国際電気通信連合 電気通信標準化部門
MCR	Master Control Room	主調整室
MoIC	Ministry of Information and Communications	情報通信省
OB-VAN	Outdoor Broadcasting VAN	中継車
TVRO	Television Receive Only	
UNDP	United Nations Development Programme	国連開発計画



## 評価調査結果要約表

1. 案件の概要	
国名：ブータン	案件名：国営放送支援プロジェクト
分野：情報通信技術	援助形態：技術協力プロジェクト
所轄部署：社会開発部 第三グループ	協力金額（評価時点）：117,684 千円
協力期間	2005年6月16日～
	2007年6月15日
	先方関係機関：ブータン国営放送局(BBS) 日本側協力機関：NHK、総務省 他の関連協力：個別専門家「テレビ放送技術」
1-1 協力の背景と概要	
<p>ブータン国（以下、「ブ」国）における経済基盤整備は、わが国による対「ブ」国の援助重点分野であり、「テレビ放送・通信整備」は主要プログラムのひとつである。「ブ」国政府は民主化推進のもと、「的確な情報提供と一般大衆の教育向上に寄与する」ことをBBSに求めており、これを受けて1) 全国テレビネットワーク網の確立、2) 放送時間の拡大、3) 60%以上の自主番組制作、4) 野外番組中継車による地域放送サービスの格差是正、5) 新TV放送センターの建設等が実現すべき目標としてあげられている。同時に「ブ」国政府は「ブータン固有の文化、伝統の継承、民意の統一」に努めており、1999年に始まった民間CATV普及による外国文化の急激な流入への危機感から2005年にCATVに対し規制を実施すると共に、BBSをMulti Service Operator (MSO)の事業者指名し、国有の文化や言葉を中心とした「ブ」国独自の番組制作の強化も求めている。</p> <p>BBSは1986年のラジオ放送局に始まり、1999年に首都圏ティンプーのみに限定した国営放送局として放送サービスを開始し、2003年1月にTVスタジオが完成した。また、2003年6月から派遣された個別専門家の指導のもと、エンジニアへの技術移転等が行われ、同月にランドクルーザー(4W)を改良して3カメラ体制の中継車(Outside Broadcasting VAN: OB-VAN)を導入し、番組制作能力強化も図ってきた。2004年に無線中継伝送装置(Field Pickup Unit: FPU)導入も実現、2005年には草の根無償資金協力により本格的なOB-VANが導入され、生中継も首都圏ティンプーに限って可能になった。</p> <p>こうした背景のもと、2005年6月に国営放送の機能強化を目的とした技術協力プロジェクト「ブータン国営放送支援プロジェクト」がBBSをカウンターパート(C/P)に2年間の予定で開始され、運用管理・監視体制の確立、報道をはじめとした番組制作能力の強化による必要な情報を的確に提供できる体制の整備が期待されている。</p>	
1-2 協力内容	
(1) 上位目標	
ブータン国民が報道・生活情報を的確および迅速に視聴できる環境が確立される。	
(2) プロジェクト目標	
国営放送の番組制作能力と情報提供機能が向上する。	

(3) 成果			
① 全国 TV ネットワークの運用管理・監視体制を確立する。			
② 番組制作能力を向上させる。			
③ 報道番組編成体制を強化する。			
④ 野外番組制作および中継機能を強化する。			
(4) 投入 (評価時点)			
日本側：117,684 千円			
長期専門家派遣	1 名	機材供与	約 5,200 万円
短期専門家派遣	3 名	研修員受入	2 名
相手国側：			
カウンターパート配置	6 名	機材購入	なし
土地・施設提供、ケーブル等		ローカルコスト負担	現地通貨 500,000Nu (1,350,000 円)

2. 評価調査団の概要

調査者	(担当分野：氏名 職位)		
	団長・総括	増田 親弘	独立行政法人国際協力機構 社会開発部 第三グループ 情報通信チーム長
	放送技術	山北 淳	日本放送協会(NHK) 国際放送局 企画編成部 担当部長
	協力企画／評価分析		
		福原 一郎	独立行政法人国際協力機構 社会開発部 第三グループ 情報通信チーム
調査期間	2007 年 1 月 21 日～2007 年 2 月 1 日		評価種類：終了時評価

3. 評価結果の概要

3-1 実績の確認
(1) 成果
<p>成果①については、主調整室 (Master Control Room: MCR) の整備により全国 TV ネットワークの運用管理・監視体制の強化が行われたが、光ファイバーを使用して地方で収集した映像素材をタイムリーにティンパーへ伝送するシステムについては、ブータン通信公社の協力を経て今後残りの期間で確立される見込みであるが、地方発ニュース番組については地方での映像素材収集状況に応じて放送されている。成果②については、プロジェクト開始時は 1 日 6 時間の放送であったが、現在は 1 日 10 時間の放送を行っており、週 35 番組以上の自主制作番組を放送していることから、すでに達成されているといえる。成果③については、報道企画番組が週 3 回制作・放送され、また緊急報道の体制も確立されている。成果④については、イベントがある場合にのみ野外生中継が行われているが、今後は FPU や OB-VAN をさらに活用して定期的に生中継を行うことが期待される。</p>



## (2) プロジェクト目標

上記にも述べたとおり地方の映像情報をタイムリーに放映する体制はまだできていないが、放送機材の整備と自主制作番組の適切な企画と放送により、人々に必要な情報を BBS は提供していることから、プロジェクト目標はほぼ達成されているといえる。

## (3) 上位目標

本プロジェクトにおいては、放送機材の整備や専門家による技術移転等により、特に BBS の放送技術の能力が向上したと言えるが、上位目標を達成するためには、本プロジェクトでは比較的投入量の少なかった放送の質向上のための番組制作能力の強化と、視聴可能者数増加に向けた、ブータン側によるさらなる追加機材の導入が必要であるといえる。

## 3-2 評価結果の要約

### (1) 妥当性

ブ国では 2002 年より 5 ヶ年国家開発計画を立案しており、情報の周知と民衆教育を目標としていることから、本案件は同開発計画に合致している。また、JICA のブ国国別援助計画ではメディアの発展を優先しているため、本案件は同援助計画に合致しており、以上より妥当性は高いと言える。

### (2) 有効性

本プロジェクトの有効性は高い。本プロジェクトによりブ国国民への情報普及に関する素地は確立された。今後は、成果 1 に関連する、地方の情報を瞬時に収集するシステムを整えば、本案件の目標が達成されると考えられる。

### (3) 効率性

プロジェクト目標の達成に必要な長期、短期専門家の派遣及び本邦研修の実施により、必要な技術移転を行うことができた。また、供与された機材の管理は適切に行われており、機材の活用状況も良好であった。また、ケーブルなどの周辺機器はブ国側より提供されたことから、日本側による無駄な投入を避けることができた。このことから、効率性は高いと言える。

### (4) インパクト

上位目標の達成は限定的であるが、いくつかの予想しなかったポジティブインパクトがあった。一例として、本邦研修に参加した BBS スタッフが帰国後に積極的に日本で得た知識や技術を局内に紹介しており、BBS 全体の能力強化に貢献していることである。その後同スタッフの下で仕事を覚えた人間が支局長になるなど、大きなインパクトがあった。

一方、ネガティブなインパクトは見受けられない。

### (5) 自立発展性

#### ・組織体制

BBS はブ国において良い評価を得ており、本案件に関わった全ての C/P が業務を継続する意向を示している。また、本邦研修に参加したスタッフによる研修内容の紹介は行われている。しかし、同スタッフから直接指導を受けられる人数には限りがあり、150 人から 250 人に増強された新入職員の育成には更にシステマティックな人材育成計画が必要である。

・技術面

機器メンテナンスに関する能力が日本の支援により向上しており、プロジェクト終了後も引き続き機器の管理に努めることが期待される。今後の放送規模拡大においては MCR 運用管理に係る技術の定着及び番組制作手法の確立が必要となってくることから、これらの技術の BBS 内での共有が必要であると考えられる。

・財政面

財政的な側面は財源確保が課題として残った。収入源確保のため、広告宣伝を検討したが市場規模により困難と判断され、国からの継続的支援が必要である。

### 3-3 効果発現に貢献した要因

1名の長期専門家が、現場に必要なニーズを把握し、必要な複数名の短期専門家を派遣する形態が、技術的な専門知識の技術移転に効果的・効率的であった。

### 3-4 問題点及び問題を惹起した要因

プロジェクト開始後に、PDM をプロジェクト関係者間で見直すタイミングがなかった。プロジェクトの適正な実施と定期的なモニタリングのために、PDM は関係者間でよく共有しておく必要がある。

### 3-5 結論

プロジェクトは、概ね成果およびプロジェクト目標の達成に向けて進んでいることを確認したが、プロジェクト終了までに、ブータン通信公社の協力を得つつ、光ファイバーを利用した地方素材の収集のしくみの確立と、マイクロ波を利用した地方素材収集のトライアルを行うことが求められる。上位目標についても、現時点でその一部は達成しつつあり、今後ブータン通信公社他との協力体制を築くことによるシナジー効果によって、上位目標が達成することが期待される。

### 3-6 提言（当該プロジェクトに関する具体的な措置、提案、助言）

[プロジェクト終了時に向けての提言]

(1) 光ファイバーを利用した地方素材収集の仕組みを確立するために、BBS がブータン通信公社と連携して光ファイバーの共同利用を行う。

(2) プロジェクト専門家の指導により、マイクロ波を利用した地方素材収集のトライアルを実施する。

(3) ブータン側が減価償却を考慮に入れた供与機材の更新計画をたてる。

[プロジェクト終了後に関する提言]

(1) 2008年のブ国の民主化実現を促進するために、直ちに専門的技術能力を向上させるための技術移転が外部専門家によってなされる。

(2) ブータン側がプロジェクトの成果を持続させるために、BBS内に継続的な人材研修の仕組みを作る。

(3) ブータン側が、番組制作手法を改善し、番組の質を向上させる。

(4) ブータン側が、生放送の頻度を高める。

(5) ブータン側が、スタジオ制作番組を増やす。

3-7 教訓（当該プロジェクトから導き出された他の類似プロジェクトの発掘・形成、実施、運営管理に参考となる事柄）

(1) プロジェクトの適正な実施と定期的なモニタリングのために、PDM は関係者間でよく共有しておく必要がある。

(2) 技術的な専門知識の技術移転には、1名の長期専門家と複数名の短期専門家の組み合わせは効果的・効率的である。

3-8 フォローアップ状況

- ・ 無償資金協力による放送機材供与の実施
- ・ 技プロ後継案件の実施



## 第1章 終了時評価調査団の派遣

### 1-1 調査団派遣の経緯と目的

ブータン国営放送支援プロジェクト（以下、本プロジェクト）は、2007年6月中旬をもって終了する予定であることから、プロジェクトデザインマトリックス（Project Design Matrix：以下PDM）に沿い、プロジェクトの実績、実施プロセスを調査し、相手側機関と合同でプロジェクト目標等の達成状況を確認するとともに、評価5項目（妥当性、有効性、効率性、インパクト、自立発展性）の観点からプロジェクトの実施結果を評価する。特に、①放送技術の移転状況の評価及び投入された機材の活用状況、②2008年度に控えている総選挙において国営放送が適切に機能するためのJICAの今後の協力方策の検討を重点的に行い、これらの結果をミニッツに取りまとめ、署名する。

### 1-2 調査団の構成

本調査団は、団長をはじめとし、放送技術、協力企画を担当する以下の3名で構成された。

氏名	担当	所属
増田 親弘	団長・総括	独立行政法人国際協力機構 社会開発部 第三グループ 情報通信チーム長
山北 淳	放送技術	日本放送協会 国際放送局 企画編成部 担当部長
福原 一郎	協力企画/ 評価分析	独立行政法人国際協力機構 社会開発部 第三グループ 情報通信チーム

### 1-3 調査日程

終了時評価調査の日程は以下のとおりである。

月日（曜日）	活動内容
1月21日（日）	成田発（TG641）→バンコク着（10:45-15:45）
1月22日（月）	バンコク発→パロ着（06:50-10:00 KB121） JICA事務所表敬・打合せ、財務省表敬、専門家との打合せ
1月23日（火）	合同評価団員内打合せ ブータン国営放送局（BBS）表敬、BBSからのヒアリング BBS既存施設及び建設中テレビ会館視察、 供与機材確認、BBSとの夕食会
1月24日（水）	情報通信省表敬、情報通信メディア庁（BICMA）からのヒアリング BBS帰国研修員からのヒアリング

1月25日(木)	ブータン通信公社(BT)表敬
	CATV オペレータ (NORLING CABLE SYSTEMS) 訪問 JOCV 隊員からのヒアリング 外務省政策協議ミッション及び事務所関係者との夕食会
1月26日(金)	ティンプー → ブムタンに移動
1月27日(土)	BBS ブムタン支局訪問 ザンテルポ村訪問 ブムタン→トンサに移動
1月28日(日)	トンサ→ティンプーに移動 ルクブジ村訪問
1月29日(月)	ミニッツ協議 無償資金協力予備調査団及び外務省政策協議ミッションとの打合せ
1月30日(火)	ミニッツ署名 JICA 事務所報告、情報通信省次官主催の夕食会
1月31日(水)	パロ発→バンコク着 (09:30-16:00 KB120) NECTEC 安井専門家との打合せ、バンコク発 (KG642)
2月1日(木)	成田着 (23:40-07:30)

#### 1-4 主要面接者

終了時評価調査における主要面談者は、以下のとおりである。

##### 【財務省 : Ministry of Finance】

Dasho Yanki Tobgyel Wangchuk	Finance Secretary
Mr. Sonam Wangchuk	Director General, Department of Aid and Dept Management
Mr. Norbu Wangchuk	Department of Aid and Dept Management

##### 【情報通信省 : Ministry of Information and Communications】

Dasho Tashi Phuntsog	Secretary
Mr. Yeshey	Policy and Planning division

##### 【情報通信・メディア庁 : Bhutan Infocomm and Media Authority】

Mr. Pema Tenzin	Director General
Mr. Wangay Dorji	Head, Telecommunications

##### 【ブータン国営放送局 : Bhutan Broadcasting Service Corporation】

Mr. Mingbo Dukpa	Managing Director
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Ms. Sangay Choden	Assistant, Planning Officer
Mr. Sonam Tobgyal	Chief Engineer, Technical Department
Mr. Kesang	General Manager, Radio Department
Mr. Rajesh Kafley	Executive Engineer, Operations/Maintenance Division
Mr. Dorji Wangchuk	Head, Transmission Unit
Mr. Panchaman Rai	TV Studio Engineer, Technical Department
Mr. Tashi Dorji	General Manager, TV Department
Mr. Neten Dorjee	Manager, TV Programme & Production Division
Mr. Kinga Penjor	TV Producer
Mr. Rinchen Norbu	Cameraman-Photographer, Radio-TV Programme & Production Department, TV Programme & Production Division

【ブータン通信公社 : Bhutan Telecom】

Mr. Thinley Dorji	Managing Director
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【Norling Cable Systems (CATV オペレータ)】

Mr. Kunzang Wangchuk	Managing Director
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【日本側関係者】

清水 信介	外務省アジア・大洋州局南西アジア課長
加茂野 亮介	外務省国際協力局無償資金・技術協力課
横田 隆浩	JICA アジア第二部南西アジアチーム
平田 正幸	(株)アイエスインターナショナル 取締役 最高顧問
佐藤 健市	(株)アイエスインターナショナル 取締役 放送技術担当
岩本 園子	JICA 無償資金協力部 情報通信・ガバナンスチーム
喜久村 一	ブータン国営放送支援プロジェクト 長期専門家
境田 英昭	JICA 青年海外協力隊員 (BBS 配属)
矢部 哲雄	JICA ブータン事務所長
宮田 真弓	JICA ブータン事務所企画調査員

## 1-5 対象プロジェクトの概要

### 1-5-1 プロジェクトの背景

ブータン国（以下、「ブ」国）における経済基盤整備は、わが国による対「ブ」国の援助重点分野であり、「テレビ放送・通信整備」は主要プログラムのひとつである。「ブ」国政府は民主化推進のもと、「的確な情報提供と一般大衆の教育向上に寄与する」ことをブータン国営放送局（BBS）に求めており、これを受けて 1)全国テレビネットワーク網の確立、2)放送時間の拡大、3)60%以上の自主番組制作、4)野外番組中継車による地域放送サービスの格差是正、5)新 TV 放送センターの建設等が実現すべき目標としてあげられている。同時に「ブ」国政府は「ブータン固有の文化、伝統の継承、民意の統一」に努めており、1999年に始まった民間 CATV 普及による外国文化の急激な流入への危機感から 2005年に CATV に対し規制を実施すると共に、BBS を Multi Service Operator (MSO)の事業者指名し、国有の文化や言葉を中心とした「ブ」国独自の番組制作の強化も求めている。

BBS は 1986年のラジオ放送局に始まり、1999年に首都圏ティンプーのみに限定した国営放送局として放送サービスを開始し、2003年1月に TV スタジオが完成した。また、2003年6月から派遣された個別専門家の指導のもと、エンジニアへの技術移転等が行われ、同月にランドクルーザー(4W)を改良して 3カメラ体制の中継車(Outside Broadcasting VAN: OB-VAN)を導入し、番組制作能力強化も図ってきた。2004年には FPU システム導入も実現、2005年には草の根無償資金協力により本格的な OB-VAN が導入され、生中継も首都圏ティンプーに限って可能になった。

こうした背景のもと、2005年6月に国営放送の機能強化を目的とした技術協力プロジェクト「ブータン国営放送支援プロジェクト」が BBS をカウンターパート(C/P)に2年間の予定で開始され、運用管理・監視体制の確立、報道をはじめとした番組制作能力の強化による必要な情報を的確に提供できる体制の整備が期待されている。

### 1-5-2 プロジェクトの概要

本プロジェクトの上位目標、プロジェクト目標、成果については、以下のとおりとなっている。

#### (1) 上位目標

ブータン国民が報道・生活情報を的確および迅速に視聴できる環境が確立される。

#### (2) プロジェクト目標

国営放送の番組制作能力と情報提供機能が向上する。

#### (3) 成果

- ① 全国 TV ネットワークの運用管理・監視体制を確立する。
- ② 番組制作能力を向上させる。
- ③ 報道番組編成体制を強化する。
- ④ 野外番組制作および中継機能を強化する。



## 第2章 終了時評価の方法

### 2-1 PDMについて

プロジェクトの PDM については、2005 年 6 月 16 日のミニッツ署名の際に策定された「SCOPE OF TECHNICAL COOPERATION」の項に基づいて、評価用 PDM (PDMe) を作成し、評価に使用することとする。PDMe の日本語版は付属資料 3 のとおりである。

### 2-2 評価の手順

JICA の事業評価ガイドラインによると、基本的な評価手順は 3 つの段階に分けられる。第 1 段階としては PDM に記載されている投入、活動、成果の観点からプロジェクトの達成度を確認するとともに、実施プロセスを検証することである。次に、第二段階としては、以下に示すとおり、妥当性、有効性、効率性、インパクト、自立発展性の評価 5 項目に沿って評価を実施する。最後に第 3 段階として、第 1 段階及び第 2 段階の結果に基づき、プロジェクト期間終了後に向けた提言及び将来の類似プロジェクトのための教訓を抽出する。

評価事項	評価内容
STEP 1 :	
投入及び活動実績	①日本側で投入した専門家、本邦研修機材、現地活動費、ブータン側で投入したカウンターパート、施設、予算等を確認する。 ②これまでのプロジェクトにおける活動実績を PDM に沿って確認する。
成果、プロジェクト目標及び上位目標の達成度	①成果の達成状況を PDM の指標に沿って評価する。 ②プロジェクト目標の達成状況を PDM の指標に沿って評価する。 ③上位目標の達成状況を PDM の指標に沿って評価する。
プロジェクトの実施プロセス	PO(Plan of Operation)、TSI(Tentative Schedule of Implementation)等に基づき、実施プロセスで特に問題点がある場合には、評価を行う。
STEP 2 :	
5 項目評価	①妥当性、②有効性、③効率性、④インパクト、⑤自立発展性の評価 5 項目に従い、上記で得られた評価結果を取りまとめなおす。
STEP 3:	
提言	プロジェクト終了時までの計画及びそれに対する提言、プロジェクト終了後における活動に関する提言を行う。
教訓	類似のプロジェクトに活用できるよう、本プロジェクトにおいて学んだ教訓を取りまとめる。

## 2-3 主な調査項目と情報・データ収集方法

### 2-3-1 主な調査項目

#### (1)実績確認と実施プロセスの把握

- ① 日本・ブータン双方の投入、プロジェクトの活動実績、プロジェクトの成果、プロジェクト目標、上位目標の具体的な達成度合いを確認する。
- ② 運営・管理状況、活動状況、C/P への技術移転方法を中心にプロジェクト協力期間中の実施プロセスについて把握する。

#### (2)評価 5 項目による評価

上記(1) で確認されたプロジェクトの実績及び実施プロセスについて、以下の 5 つの観点（「評価 5 項目」）から評価を行う。評価に使用する評価グリッドを作成して行う。

- ① 妥当性
- ② 有効性
- ③ 効率性
- ④ インパクト
- ⑤ 自立発展性

#### (3)障害・貢献要因の総合的検証

プロジェクト目標及び成果の達成に貢献した要因及び達成を障害した要因を調査・分析する。

#### (4)特に検討すべき事項

- ① 放送技術の移転状況の評価及び投入された機材の活用状況を確認し、それがプロジェクト目標である国営放送の番組制作能力と情報提供機能の向上に繋がっているかを確認する。
- ② 2008 年度に控えている総選挙において国営放送が適切に機能するための JICA の今後の協力方策を検討する。

#### (5)総括（結論）

上記評価 5 項目による評価結果を受けて、プロジェクトの総合判定を行う。

#### (6)教訓及び提言

- ① 上記結論に基づき、プロジェクト及びブータン側政府関係者に対し、提言や助言を行う。
- ② 上記結論に基づき、実施中の他の類似プロジェクトや将来開始されるプロジェクトの発掘・形成に参考になる事柄を取り纏める。

### 2-3-2 情報・データ収集方法

#### (1)文献資料調査

本プロジェクトの半期報告書、活動実績報告、投入実績報告などから必要な情報を収集する。

#### (2)質問票による調査

事前に質問票を作成の上、プロジェクトの長期専門家、BBS の C/P あてに配布し、情報収集を行う。

#### (3)直接観察

BBS を訪問して供与機材を確認し、また、地方都市を訪問して放送受信状況等の確認を行う。

#### (4)インタビュー調査

BBS において、BBS 幹部、BBS の C/P に対してインタビュー調査を行う。また、ティンブーから車で 8 時間のところにある地方都市であるブムタンにおいて BBS 地方支局の職員に対するインタビュー調査を

行い、また周辺住民に対してのインタビュー調査も実施する。それ以外にも、情報通信省やメディア庁、ブータン通信公社(BT)等の関係機関へヒアリングを行う。

#### 2-4 ブータン側評価チーム

ブータン側評価チームは、以下のメンバーによって構成された。

氏名	所属
Mr. Kesang	General Manager, Radio Department, Bhutan Broadcasting Service Corporation (BBS)
Mr. Yeshey	Assistant Planning Officer, Policy and Planning Division, Ministry of Information and Communications

## 第3章 調査結果

### 3-1 投入

#### 3-1-1 日本側投入

##### (1) 専門家派遣

2007年1月末現在で、長期専門家1名、短期専門家3名（2005年度2名、2006年度1名）の専門家を派遣している（本報告書作成段階で当初予定していた短期1名の派遣が行われたため最終的には長期1名、短期4名となった）。

表3-1 専門家派遣実績

専門家氏名	指導分野	派遣期間	備考
喜久村 一	放送技術	2005. 6. 16-2007. 6. 15	長期
緒方 叡	番組制作	2005. 9. 22-2005. 10. 21	短期
武田 信美	送信技術	2006. 2. 21-2006. 3. 21	短期
室井 謙三	番組運用制作技術	2006. 11. 22-2006. 12. 21	短期
秋山 茂也	情報番組制作	2007. 3. 6-2007. 4. 5	短期

##### (2) 供与機材

2年間で総額14,434,000Nu（約7,148万円）<sup>1</sup>の機材が供与された。主な機材はMCR用機器、光端局整備機材、OB-VAN用装置などである。詳細は付属資料を参照のこと。

制作関連機材と、素材伝送用機材の導入は、ポイントを絞って適切に行われている。整備箇所は、局外中継車、中継準備室、マスターコントロール室（MCR）、回線センターであり、コーディネーション装置、館内時計などの整備を行うことにより、既存設備を効率よく、ニュース専用スタジオ・番組制作専用スタジオへ転換することができた。特に、今まで整備されていなかったコーディネーション装置・館内時計は生放送対応には欠かせない設備であり、これらの整備により生放送が確実にできる体制が整い放送形態のバリエーションを広げることができるようになった。

また、光ファイバー伝送装置・画像圧縮伝送装置については、BTのインフラを使つての素材伝送の実現に向けて機材の準備が行われている。光ファイバー装置を、BT所有のダークファイバーへ接続しての素材伝送実験は既に行われており、伝送できることが確かめられている。引き続き現在、画像圧縮伝送装置をBTデジタルマイクロ波伝送網に接続するテストの準備を行っており、近々伝送実験を行う予定となっている。これらの伝送関連装置を用いることにより、ティンパー以外の地域に伝送端局を設置したフィードポイントからBTインフラを通してのBBSティンパー本局までの素材回線が確立することになり、タイムリーに地方からの素材提供が可能となる。

投入された設備・装置はよくメンテナンスされていて稼働率も高く、故障しているものも無い。

##### (3) 研修員受入

2年間で2名のカウンターパートを本邦研修に受け入れた（本報告書作成段階で当初予定していた2件の研修が行われたため、最終的には4名を受け入れた）。実績は以下のとおりである。

<sup>1</sup> Nuはニュルタム。1Nu=2.7円で換算。

表 3-2 研修員受入実績

氏名	タイトル	研修内容	期間
Mr. Kinga Penjor	TV Producer	TV 番組制作	2005. 7. 5-2007. 9. 24
Mr. Panchaman Rai	TV Studio Engineer	TV 放送技術	2006. 7. 5-2007. 9. 9
Mr. Tharchen Sherub	TV Studio Engineer	VTR 保守運用	2007. 1. 29-2007. 2. 16
Mr. Sonam Rinchen	Reporter	TV 番組制作	2007. 2. 5-2007. 3. 23

## (4) 総コスト

日本側は 2007 年 1 月末現在、2 年間で約 1 億 1,700 万円（供与機材含む）を負担した。詳細は資料 2 の ANNEX7 を参照のこと。

これらの投入された専門家派遣、機材、本邦研修などにより、今までの放送に加え、生中継対応、5 台のカメラを駆使した大規模中継（ナショナルデー中継）、掛け合い放送（汚職撲滅キャンペーン）など放送形態の多様化を促進している。さらに、機材の投入による新しい放送制作の経験を通して、番組制作技術、送出技術、報道番組制作技術、一般番組制作技術など個々のスキルの水準も着実に向上が図られている。

## 3-1-2 ブータン側投入

## (1) 人員の配置

本プロジェクトのカウンターパートとして 6 名が配置された。長期専門家のカウンターパートとして技術部門の Chief Engineer が、また各短期専門家に対してもその指導内容に合わせたカウンターパートがアサインされた。実績は以下のとおりである。

表 3-3 カウンターパート配置

名前	タイトル
Mr. Sonam Tobgyal	Chief Engineer, Technical Department
Mr. Rajesh Kafley	Executive Engineer, Operations/Maintenance Division
Mr. Dorji Wangchuk	Head, Transmission Unit
Mr. Panchaman Rai	TV Studio Engineer, Technical Department
Mr. Neten Dorjee	Manager, TV. Programme & Production Division
Mr. Kinga Penjor	TV Producer

## (2) 施設・設備等

放送局舎内の MCR 敷設に必要なスペースやケーブル、専門家の執務スペースなどの提供があった他、運営コストとして 500,000Nu（約 1,350,000 円）の支出と、番組制作に係る費用は BBS が負担した。

## 3-2 成果の達成状況

上記投入による活動の結果、以下のような成果が確認された。

(1) 成果 1 : 「全国 TV ネットワークの運用管理・監視体制を確立する」の達成状況

指標 1-1 : 地方発番組が週 1 回放送される (2005.6 : 2 ヶ月に 1 回)

指標 1-2 : 地方支局からの素材収集体制が確立される。

達成状況 : TV 番組用に地方で収録されたビデオテープを 1 週間に 3 回集める仕組みが構築され、ニュース番組の中で放送されている。しかし、公共交通機関 (定期バスなど) を使った送付のため支局から首都ティンプーの本局に届くまで数日を要している。一方、光ファイバーを使用して地方で収集した映像素材をタイムリーにティンプーへ伝送するシステムについては試験に成功しており、BT の協力を得て今後の残りの期間で確立される見込みである。

(2) 成果 2 : 「番組制作能力を向上させる」の達成状況

指標 2 : 自主制作番組が週 35 番組放送される (2005.6 : 週 26 番組)

達成状況 : プロジェクト開始当初 1 日 6 時間の放送であったが、現在は 1 日 10 時間 (夜 5 時間、朝 5 時間) の放送を行っており、35 番組以上の自主制作番組を放送している。番組制作は朝と夜の放送の間に行っており、編集に時間をかけている。自主制作番組以外に、連続ドラマ 1 つ (ブータンの制作プロダクションに委託) と日本の文化無償で提供された「おしん」を放送している。

(3) 成果 3 : 「報道番組編成体制を強化する」の達成状況

指標 3-1 : 報道企画番組を週 1 回企画制作する (2005.6 : 0 回)

達成状況 : 週 3 回 (ゾンカ語で 2 回、英語で 1 回)、解説を含めた番組 (NHK クローズアップ現代のようなもの) を制作、放送している。新たに整備されたスタジオではニュース番組の制作に特化している。既存のスタジオではその他の番組の制作が行われている。

指標 3-2 : 緊急報道番組をプロジェクト期間中に 1 回以上実施する (2005.6 : 0 回)

達成状況 : ブータン国内で発生する緊急報道 (山火事やバスの事故など) の体制はほぼ確立されており、大事件に関しては文字情報と写真を使って報道している。今後さらに残りのプロジェクト期間内に短期専門家派遣が予定されており、その中で改善が行われる予定である。

(4) 成果 4 : 「野外番組制作および中継機能を強化する」の達成状況

指標 4-1 : 生中継放送を週 1 回実施する。(2005.6 : 月 1 回)

達成状況 : 生中継は国会の開会式やアーチェリー (ブータンの国技) 大会、重要なパネル討論会などについて FPU や OB-VAN を用いて行われている。ティンプーにおける生中継を行う体制は強化されている。しかしながら恒常的に生中継を行うためにはプロジェクト期間中に更なる経験を積む必要がある。

3-3 プロジェクト目標の達成状況

プロジェクト目標は「国営放送の番組制作能力と情報提供機能が向上する」となっており、その達成度合いを測る指標として「ブータン国民に必要な情報が適切に提供される」が設定されている。

“National Survey on Radio and Television in Bhutan 2006” によると BBS はケーブルテレビ等 (Star Plus、Zee Cinema) を含む多くのチャンネルの中でもっとも頻繁に見られているチャンネルとして評価

されている。このことからBBSがブータンの人々にとって信頼かつ有益な情報を提供していると言える。しかしながら、地方の映像情報をタイムリーに放映する体制を確立する必要がある。

上記より、いくつかの強化項目は残されているものの、プロジェクト目標はほぼ達成されたといえる。

#### 3-4 プロジェクト上位目標の達成状況

プロジェクト上位目標は「ブータン国民が報道・生活情報を的確および迅速に視聴できる環境が確立される」となっている。本プロジェクトにおいては、機材の供与や専門家による技術移転等により、特にBBSの放送技術の能力が向上したと言えるが、上位目標を達成するためにはこれまで力をあまり入れてこなかったテレビ番組制作能力の強化と、視聴可能者数増加のためのさらなる追加機材の導入が必要であるといえる。

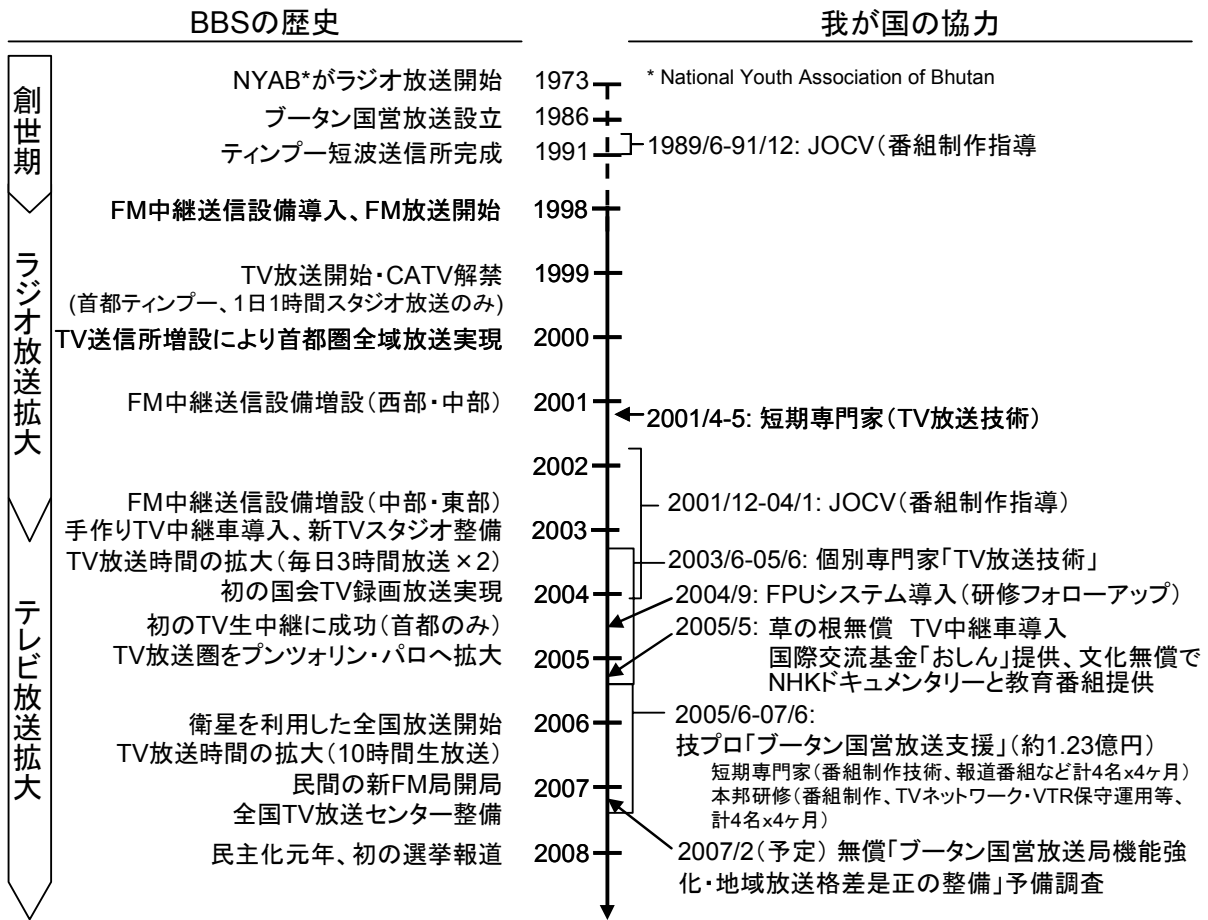
#### 3-5 プロジェクトの実施プロセス

BBSのTV部門への協力は2001年4月～5月に派遣されたTV放送技術の短期専門家の派遣から行われ、2001年12月から2年間にわたり番組制作指導の青年海外協力隊を派遣している。並行してTV放送技術の個別専門家として本プロジェクトの長期専門家でもある喜久村専門家が2003年6月から派遣された。

喜久村専門家の尽力により2年間のうちに本格的なTV番組放送の体制が整ったことを受け、本格的な支援として2005年6月から技術協力プロジェクトとして本プロジェクトが開始された。

プロジェクト実施期間中は定期的に短期専門家が派遣されたこと、また長期専門家からも定期的な報告があがってきており、事務所によるモニタリングも適切に行われていたため特段の問題も生じなかったことから、調査団を派遣してのモニタリングは行わず、今回の終了時評価調査団の派遣が行われた。

図表 1. BBS の歴史と我が国の協力



出所：ブータン事務所作成



## 第4章 評価結果

### 4-1 5項目評価

本調査において確認されたプロジェクトの実績をもとに、以下の5つの観点（「評価5項目」）から評価を行った結果は以下のとおりである。

#### 4-1-1 妥当性

ブ国では2002年より5ヵ年国家開発計画を立案しており、情報の周知と民衆教育を目標としていることから、本案件は同開発計画に合致している。

他ドナーの支援に関しては、次のとおりである。インド国から全国放送用にサテライトシステムが、ITU-Tによりアップリンクシステムが供与されている。加えてデンマーク国が人材育成に関する支援を行っている。本プロジェクトで供与されたMCRと前述の支援が適切に機能し、相乗効果をもたらしている。

JICAのブ国国別援助計画ではメディアの発展を優先しているため、本案件は同援助計画に合致している。

このことから、妥当性は高いといえる。

#### 4-1-2 有効性

本プロジェクトの有効性は高い。本プロジェクトによりブ国国民への情報普及に関する素地は確立された。特にOB-VANやFPUの使用により成果1及び成果4の達成を効果的に行うことができた。今後は、成果1に関連する、地方の情報を瞬時に収集するシステムを整えば、本案件の目標が達成されると考えられる。

#### 4-1-3 効率性

プロジェクト目標の達成に必要な長期、短期専門家の派遣及び本邦研修の実施により、必要な技術移転を行うことができた。また、供与された機材の管理は適切に行われており、機材の活用状況も良好であった。また、ケーブルなどの周辺機器はブ国側より提供されたことから、日本側による無駄な投入を避けることができた。

このことから、効率性は高いといえる。

#### 4-1-4 インパクト

調査結果の項で述べたように、上位目標の達成は限定的であるが、いくつかの予想しなかったポジティブインパクトがあった。一例として、本邦研修に参加したBBSスタッフが帰国後に積極的に日本で得た知識や技術を局内に紹介しており、BBS全体の能力強化に貢献していることである。その後同スタッフの下で仕事を覚えた人間が支局長になるなど、大きなインパクトがあった。

一方、ネガティブなインパクトは見受けられない。

#### 4-1-5 自立発展性

##### (1)組織体制

BBS はブ国において良い評価を得ており、本案件に関わった全てのカウンターパートが業務を継続する意向を示している。また、本邦研修に参加したスタッフによる研修内容の紹介は行われている。しかし、同スタッフから直接指導を受けられる人数には限りがあり、150 人から 250 人に増強された新入職員の育成には更にシステマティックな人材育成計画が必要である。

##### (2)技術面

機器メンテナンスに関する能力が日本の支援により向上しており、プロジェクト終了後も引き続き機器の管理に努めることが期待される。今後の放送規模拡大においては MCR 運用管理に係る技術の定着及び番組制作手法の確立が必要となってくることから、これらの技術の BBS 内での共有が必要であると考えられる。

##### (3)財政面

財政的な側面は財源確保が課題として残った。収入源確保のため、広告宣伝を検討したが市場規模により困難と判断され、国からの継続的支援が必要である。

#### 4-2 結論

プロジェクトは、概ね成果およびプロジェクト目標の達成に向けて進んでいることを確認したが、プロジェクト終了までに、BT の協力を得つつ、光ファイバーを利用した地方素材の収集のしくみの確立とマイクロ波を利用した地方素材収集のトライアルを行うことが求められる。上位目標についても、現時点でその一部は達成しつつあり、今後、BT 他との協力体制を築くことによるシナジー効果によって、上位目標を達成することが期待される。したがって、日ブ合同評価チームは本技術協力プロジェクトを当初の予定どおり 2007 年 6 月 15 日をもって終了することとする。

## 第5章 提言と教訓

### 5-1 提言

結論でも記載したとおり、5項目評価の結果は高いものであるが、効率性における課題を踏まえ、終了時までさらに成果を上げ、プロジェクト目標及び上位目標をより高いレベルで達成するために、またプロジェクトの実施結果をプロジェクト終了後にBBSにおいて有効活用できるように、以下のとおり提言を行った。

#### 5-1-1 プロジェクト終了に向けて提言

##### (1) 地方素材の収集の仕組みの確立

光ファイバーやマイクロ波を利用した地方素材収集の仕組みについて試験を重ね、恒常的に利用できるような体制を確立する必要がある。素材伝送機材については、インターネットの活用や、インマルサットのB-GANサービスを用いた映像伝送の導入も検討する必要がある。また、運用経費の確保についても、例えば、情報省・主管庁・オペレータであるBBSなどで、新しいデジタル伝送プロジェクトを立ち上げるなど関係機関と連携してその仕組みを確立することが望ましい。

##### (2) 放送技術スタッフと番組制作スタッフとの協力体制強化

機材への支援に加え技術的な支援により、放送の多様性、質、量の向上が順調に図られている。また、機材を使い経験を積むことにより、技術面・演出面での向上も図られている。しかし、実際の番組を見ていると、例えばスタジオの音声と素材の音声のレベルなどが十分に管理されておらず、全体として統一感の無い物となっている。演出サイドが、スタジオに入っていないことなど、技術と演出の協調性の向上も必要である。番組内容に対するチェック体制が十分でなく、番組に対する判断、基準が個々まちまちである点など、BBS全体の放送局としての体制の確立が必要である。放送は、単に個々のスキルや情熱だけで成り立つものではなく、放送局全体の協調と理解によるところも多い。

##### (3) 減価償却を考慮に入れた供与機材の更新計画をたてる

放送を継続していくためには機材の更新を行う必要がある。制作機材については、民生用機器の大胆な投入も検討する必要がある。昨今の民生機器の性能の向上、小型化、価格の低廉化は機材の選定について検討する必要がある。

#### 5-1-2 プロジェクト終了後に関する提言

プロジェクトが終了しても国営放送としての機能をさらに充実したものにしていくために以下の提言がなされ、BBSは更なる努力をすることが確認された。

[プロジェクト終了時に向けての提言]

(1) 2008年のブ国の民主化実現を促進するために、直ちに専門的技術能力を向上させるための技術移転が外部専門家によってなされる。

(2) ブータン側がプロジェクトの成果を持続させるために、BBS内に継続的な人材研修の仕組みを作る。

- (4)ブータン側が、番組制作手法を改善し、番組の質を向上させる。
- (5)ブータン側が、生放送の頻度を高める。
- (6)ブータン側が、スタジオ制作番組を増やす。

## 5-2 教訓

本プロジェクトから類似案件及び将来同分野の案件に関する以下の教訓を導き出した。

- (1)プロジェクトの適正な実施と定期的なモニタリングのために、PDM は関係者間でよく共有しておく必要がある。
- (2)技術的な専門知識の技術移転には、1名の長期専門家と複数名の短期専門家の組み合わせは効果的・効率的である。

## 【付属資料】

資料 1. 実施協議調査 協議議事録 (M/M) 2005 年 6 月 16 日

資料 2. 終了時評価調査 協議議事録 (M/M)、  
Joint Evaluation Report 2007 年 1 月 30 日

資料 3. プロジェクトデザインマトリックス (PDM) 日本語版

資料 4. 調査資料

資料 5. BBS 内放送機材構成図



# 付属資料

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## 1. 実施協議調査 協議議事録 (M/M)

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**MINUTES OF MEETING**  
**BETWEEN**  
**JAPAN INTERNATIONAL COOPERATION AGENCY**  
**AND**  
**BHUTAN BROADCASTING SERVICE CORPORATION**  
**OF**  
**THE ROYAL GOVERNMENT OF BHUTAN**  
**ON**  
**THE JAPANESE TECHNICAL COOPERATION**  
**FOR THE PROJECT**  
**ON ENHANCEMENT OF THE BHUTAN BROADCASTING SERVICE**


The Japanese Implementation Study Team (hereinafter referred to as “the Team”) organized by Japan International Cooperation Agency (hereinafter referred to as “JICA”) and headed by Mr. Hideo Miyamoto visited the Kingdom of Bhutan from June 14, 2005 to June 21, 2005 for the purpose of working out the details of the technical cooperation program concerning the Project on Enhancement of the Bhutan Broadcasting Service (hereinafter referred to as the “the Project”) in the Kingdom of Bhutan.

During its stay in the Kingdom of Bhutan, the Team exchanged views and had a series of discussions with the Bhutan authorities concerned with respect to desirable measures to be taken by JICA and Bhutan authorities for the successful implementation of the above-mentioned Project.

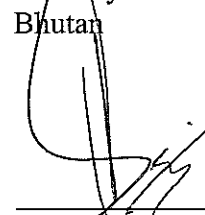
Thimphu, Bhutan  
16 June 2005

宮本 秀夫

Mr. Hideo MIYAMOTO  
Leader  
Implementation Study Team  
Japan International Cooperation Agency  
Japan



Mr. Pema CHEWANG  
Officiating Director General  
Department of Aid and Debt Management  
Ministry of Finance  
Bhutan



Mr. Mingbo DUKPA  
Managing Director  
Bhutan Broadcasting Service Corporation  
Bhutan

## ATTACHED DOCUMENT

### **I. PROJECT TITLE**

Both sides have agreed that the Project title is "Enhancement of the Bhutan Broadcasting Service".

### **II. SUMMARY OF THE PROJECT**

#### **1. IMPLEMENTING AUTHORITY**

Bhutan Broadcasting Service Corporation (BBS)

#### **2. BACKGROUND AND JUSTIFICATION OF THE PROJECT**

BBS is a public service broadcast station dedicated to socio-economic development of the people using electronic media; radio, television and internet service. The Royal Government of Bhutan (hereinafter referred to as "RGoB") places high priority to the development of radio and television services as tools for education, information and increased people's participation in decision making process. BBS' main objective during 9<sup>th</sup> Five-year Plan is to ensure a better-informed and educated public.

Bhutan is a mountainous country with majority of the population living in valleys isolated by deep gorges and rivers making intra and interregional travel difficult and subjected to seasonal and climatic variations. Given the formidable geographical setting, low literacy and income levels, good communication facilities play vital roles in the socio-economic development.

Television broadcasting service started in June 1999 with a small studio. The network coverage is still limited within Thimphu valley. The rest of the country is able to view the BBS programmes through recorded VHS tapes, which are distributed by public transport system. It causes three or four days delay of viewing programmes in some remote areas. Under this circumstance, BBS has already decided to lease the satellite system from Indian government to expand the nation-wide TV network system. However, the transmission system still is required for a sustainable network.

BBS is also strongly expected to promote the Bhutanese culture-oriented programmes based on one of the RGoB's country strategies; preservation of the tangible and intangible culture and traditions. BBS plays a crucial role as a national broadcast to inform, educate and entertain the people to support national cohesion and integration. A well trained and efficient technical department will be able to plan, design, install and operate the studios and transmission network efficiently in order to meet the production and requirements, and stabilize transmission time. Then, it will provide more efficient public broadcasting service.

#### **3. SCOPE OF TECHNICAL COOPERATION**

### 3.1 Overall Goal

To establish the broadcasting network system to provide information appropriately and promptly all over the country

### 3.2 Project Purpose

To enhance the capacity of BBS in multi-sector programmes production and TV broadcasting services

### 3.3 Outputs

- (1) Establishment of control and monitoring system of TV network
- (2) Improvement of capacity of TV programmes production
- (3) Enhancement of system to organize the news programmes production and broadcasting
- (4) Improvement of capacity of outdoor programmes production and live telecast function

### 3.4 Project Activities

The Project Activities will be implemented in close collaboration between JICA and BBS

- (1-1) Establish the master control/ circuit control center
- (1-2) Establish the two-way TV system using optical-fiber in Western Part of Bhutan.
- (1-3) Conduct the pilot test of news and programme gathering system using micro wave systems in Eastern Part of Bhutan.
- (2-1) Improve the production management system
- (2-2) Train production staff through on-the-job training to improve the programme production and composition
- (2-3) Conduct the training seminars on the improvement of the quality of the community based TV productions
- (3-1) Establish the independent TV news studio
- (3-2) Train news staff through on-the-job training

(3-3) Enhance the broadcasting system of the emergency news programme

(3-4) Conduct the seminars to enhance capacity of the news coverage

(4-1) Increase rural area participation in programme production through the use of Outdoor Broadcasting (OB) VAN and Field Production Unit (FPU) system

(4-2) Improve the operation and maintenance management system by training the staff

### **III. MEASURES TO BE TAKEN BY JICA**

The following matters were confirmed in the discussion between Bhutan side and Japan side:

(A) Dispatch of JICA experts

To provide at its own expense the dispatch of JICA experts for the purpose of technical cooperation. Assignments of JICA experts are shown in Annex 1.

(B) Training of Bhutanese counterpart personnel in Japan

i) To receive Bhutanese staff from BBS or related governmental bodies for the technical training courses in Japan.

ii) The candidates for the above-mentioned training programmes shall be selected through mutual consultation between the JICA long-term expert and the Bhutanese counterpart.

(C) Follow-up Training of Bhutanese counterpart by distance lectures

To provide the distance lectures or seminars for Bhutanese staff from BBS or related governmental bodies by using JICA-Net system.

(D) Provision of machinery and equipment

To provide the equipment shown in Annex 2

### **IV. MEASURES TO BE TAKEN BY THE BHUTAN SIDE**

In accordance with the laws and regulations that are in force in Bhutan, the Bhutan side takes the following measures at its own expense:

(A) Allocation of Budget

The Bhutan side has agreed to allocate the budget necessary to cover expenses for implementation of the Project other than measures to be taken by JICA mentioned above at section III.

(B) Provision of office space and facilities for JICA experts.

(C) Assignment of counterparts

Bhutanese counterparts are assigned for JICA experts. The counterparts would have close interaction with JICA experts to make this project more fruitful, effective and viable. Assignments of Bhutanese counterparts are shown in Annex 3

(D) Customs duties, internal taxes and any other charges, imposed in the Kingdom of Bhutan on the equipment.

(E) Submission of Form A-1 for the dispatch of the JICA experts, Form A2, A3 for training programmes in Japan and A-4 form for the provision of equipment. These forms are to be submitted by the stipulated date, through the Department of Aid and Debt Management, Ministry of Finance, Government of Bhutan, which is the nodal ministry for the bilateral cooperation programme.

## V. ADMINISTRATION OF THE PROJECT

The Managing Director of Bhutan Broadcasting Service Corporation will be the overall in-charge of the Project.

The main counterpart will make necessary arrangements for JICA experts to carry out his work effectively in Bhutan. The counterpart will also endeavor to disseminate technical knowledge in Bhutan in collaboration with JICA experts.

JICA experts will provide necessary advice to the Bhutanese counterparts on administrative and technical matters that are related to the Project.

The Resident Representative of JICA in Bhutan will associate and extend all possible cooperation for successful implementation of the Project.

## VI. IMPLEMENTATION SCHEDULE

Tentative implementation schedule is shown in Annex 4, and plan of operation is shown in Annex 5.



## VII. TERM OF COOPERATION

Duration of the technical cooperation for the Project would be two (2) years.

The project will start from 16 June 2005.

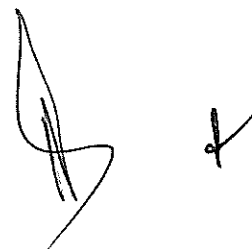
## VIII. MUTUAL CONSULTATION

There will be mutual consultation between both sides on any major issues arising from or in connection with this document.



**ANNEX:**

1. JICA EXPERTS
2. EQUIPMENT LIST (TENTATIVE)
3. BHUTANESE COUNTERPARTS
4. TENTATIVE SCHEDULE OF IMPLEMENTATION
5. PLAN OF OPERATION



ANNEX 1

**JICA EXPERTS**

Long-term expert:

Expertise: Broadcasting engineer

Short-term experts:

Expertise	Main Role
Programme production	The improvement of multi-sector programme production
Transmission engineering for SW radio and TV transmitter	Transmission engineering
News production	The improvement of news programmes
TV programme operation and production engineering	TV programme operation and production engineering



## LIST OF EQUIPMENT (TENTATIVE)

EQUIPMENT FOR BBS-MCR/CC (1/2)	
	DESCRIPTION
1	MultiFanjction/UseAVMixer PAL, AC220~240V/50Hz
2	Video Patch Panel (include 20 Patch cables/50 cm)
3	Audio Patch Panel (include 20 Patch cables/50 cm)
4	Digital Cassette Corder PAL, AC220~240V/50Hz
5	AV Distribution Amp PAL, AC220~240V/50Hz
	Video Audio Matrix Switcher PAL, AC220~240V/50Hz
	Vidio AudioMatrix Switer PAL, AC220~240V/50Hz
	Vidio Audio Receiver (PAL AC220-240/50Hz)
6	Hum eater
7	Test Signal Generator PAL, AC220~240V/50Hz
8	Cable Compensation PAL, AC220~240V/50Hz
9	Video Audio Distributer PAL, AC220~240V/50Hz
11	Four Divider Unit PAL, AC220~240V/50Hz
12	Monitor AMP AC220~240V/50Hz
	Matrix AMP AC220~240V/50Hz
13	WF/VS Monitor PAL, AC220~240V/50Hz

EQUIPMENT FOR BBS-MCR/CC (2/2)	
	DESCRIPTION
1	1:5 Video Audio Distributer AC220~240V/50Hz
2	Encoder/Decoder AC220~240V/50Hz
3	14"TV Monitors AC220~240V/50Hz
4	Copy Machine (net work Printer for A3)

West BT improvement Fiber Optics TV Service	
	DESCRIPTION
1	Optics Terminal Transmitter PAL, AC220~240V/50Hz
2	Optics Terminal Transmitter PAL, AC220~240V/50Hz
3	Optics Terminal Reciver PAL, AC220~240V/50Hz



4	Power Unit of Terminal Transmitter/Receiver AC220~240V/50Hz
5	Video Audio Distributer PAL, AC220~240V/50Hz
6	Audio Converter(Balance/ Unbalance) AC220~240V/50Hz
7	Audio Converter(Balance/Unbalance) AC220~240V/50Hz
8	Line Receiver PAL, AC220~240V/50Hz
9	Monitor AMP AC220~240V/50Hz
10	9' Color Monitor PAL, AC220~240V/50Hz
11	WF/VS Monitor PAL, AC220~240V/50Hz

Camera System for OB-VAN	
	DESCRIPTION
1	Camera System Zoom Lens Accessory 5' Viewfinder Triax adaptor station Tripod Triax Cables
	Hard Disk Recorder
2	10' Color Monitor
3	Audio recorder

ANNEX 3

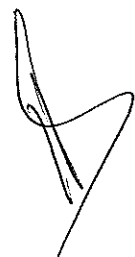
**BHUTANESE COUNTERPARTS**

Counterpart for Long-term expert:

Present Status: Chief engineer

Counterpart for Short-term experts:

Present Status	Corresponding Expert
Senior Producer	Programme production
Senior Engineer	Transmission engineering for SW radio and TV transmitter
Senior Producer	News production
Senior Engineer	TV programme operation and production engineering



## TENTATIVE SCHEDULE OF IMPLEMENTATION

Objectives	Detailed Activities	2005FY												2006FY												2007FY																											
		First Year						Second Year						2006FY						2007FY																																	
		2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	5th	6th																															
Technical transfer by long-term expert	Basic broadcasting technology																																																				
	Establish Master/circuit control center																																																				
	Set up news and program gathering service for west areas																																																				
	Set up TV signal receiving system from east areas (Trial test)																																																				
	Improvement of OB-VAN and FPU																																																				
	Improvement of TV programs and News programs																																																				
Technical transfer by short-term experts	program production																																																				
	Transmitter engineering																																																				
	News program production																																																				
	TV programme operation and production engineering																																																				
Training in Japan	Program production course																																																				
	Advance TV engineering and maintenance course																																																				
	News and current affairs production course																																																				
Follow-up Training by Distance Lecture																																																					
Provision of Equipment	MCR/CC, TV network service in west areas																																																				
	Equipment for OB-VAN																																																				

PLAN OF OPERATION

Detailed Activities	First Year												Second Year					
	2005FY						2006FY						2007FY					
	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	5th	6th	
(1-1) Establish Master/circuit control center																		
(1-2) Establish the TV network system with other rural areas using optical-fiber in Western Part of Bhutan																		
(1-3) Prepare the TV network system with other rural areas using micro wave systems in Eastern Part of Bhutan																		
(2-1) Establish the independent TV production studio																		
(2-2) Improve BBS's production system																		
(2-3) Train production staff through the on-the-job training to improve the programme production and composition																		
(2-4) Conduct the training seminars on the improvement of the quality of the community based TV productions																		
(3-1) Establish the independent TV news studio																		
(3-2) Train news programme staff through the on-the-job training																		
(3-3) Enhance the broadcasting system of the emergency news programme																		
(3-4) Conduct the seminar to enhance the capacity of the news coverage																		
(4-1) Increase rural area participation in programme production through the use of Outdoor Broadcasting (OB) VAN and Field Production Unit (FPU) system																		
(4-2) To improve the operations management system of Outdoor Broadcasting technique by training the technical staff																		

## 付属資料

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### 2. 終了時評価調査 協議議事録(M/M)

#### Joint Evaluation Report

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**MINUTES OF MEETING**  
**BETWEEN**  
**THE JAPANESE FINAL EVALUATION TEAM**  
**AND**  
**THE BHUTAN BROADCASTING SERVICE CORPORATION**  
**OF**  
**THE ROYAL GOVERNMENT OF BHUTAN**  
**ON THE JAPANESE TECHNICAL COOPERATION**  
**FOR THE PROJECT**  
**ON ENHANCEMENT OF THE BHUTAN BROADCASTING SERVICE**

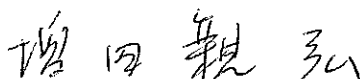
The Japanese Evaluation Team (hereinafter referred to as "the Japanese Team"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Chikahiro Masuda visited the Kingdom of Bhutan from January 22, 2007 to January 31, 2007, for the purpose of conducting a final evaluation for the Project on Enhancement of the Bhutan Broadcasting Service (hereinafter referred to as the "the Project") in the Kingdom of Bhutan.

The Bhutanese Evaluation Team (hereinafter referred to as "the Bhutanese Team") is organized by the Bhutan Broadcasting Service Corporation (hereinafter referred to as "BBS") and the Ministry of Information and Communications.

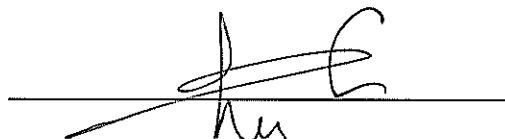
During its stay in the Kingdom of Bhutan, the Japanese Team and the Bhutanese Team exchanged views and had a series of discussions with the authorities concerned of the Kingdom of Bhutan, in order to jointly evaluate the present achievements of the Project.

As a result of the discussions among the Japanese Team and the authorities concerned of the Kingdom of Bhutan agreed upon the issues referred to in the document attached hereto.

Thimphu, 30 January 2007



Mr. Chikahiro MASUDA  
 Leader  
 The Japanese Final Evaluation Team  
 Japan International Cooperation Agency  
 Japan



Mr. Sonam WANGCHUK  
 Director General  
 Department of Aid and Debt Management  
 Ministry of Finance  
 Bhutan



Mr. Mingbo DUKPA  
 Managing Director  
 Bhutan Broadcasting Service Corporation  
 Bhutan

JOINT EVALUATION REPORT  
ON  
THE JAPANESE TECHNICAL COOPERATION  
FOR THE PROJECT  
ON ENHANCEMENT OF THE BHUTAN BROADCASTING SERVICE

JAPAN INTERNATIONAL COOPERATION AGENCY  
BHUTAN BROADCASTING SERVICE CORPORATION  
AND  
THE ROYAL GOVERNMENT OF BHUTAN

JANUARY 30, 2007





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## LIST OF ANNEXES



## 1 Outline of the Evaluation Study

### 1-1 Objective of the Final Evaluation of the Project

The Project on Enhancement of the Bhutan Broadcasting Service (hereafter referred to as “the Project”) will be completed on 15, June 2007. Therefore, the Japanese Evaluation Team (hereafter referred to as “the Japanese Team”) was dispatched to the Kingdom of Bhutan to conduct the Final Evaluation of the Project. The Japanese Team and the Bhutan Evaluation Team (hereafter referred to as “the Bhutan Team”) confirmed the achievement of the Outputs, the Project Purpose and the Overall Goal of the Project and evaluated the Project based on the Five Evaluation Criteria (Relevance, Effectiveness, Efficiency, Impact and Sustainability).

The Final Evaluation especially focused on:

1. The condition of transfer of broadcasting technology and utilization of equipment provided by JICA.
2. The activities of the remaining period of the Project, and after the completion of the Project.

### 1-2 Members of Evaluation Team

#### (1) The Bhutan Team

Name	Title	Section
Mr. Kesang	Evaluator from Bhutan Side	General Manager, Radio Department, Bhutan Broadcasting Service Corporation (BBS)
Mr. Yeshey	Evaluator from Bhutan Side	Assistant Planning Officer, Policy and Planning Division, Ministry of Information and Communications

#### (2) The Japanese Team

Name	Title	Section
Mr. Chikahiro Masuda	Leader	Team Director, ICT Team, Group III, Social Development Department, JICA
Mr. Atsushi Yamakita	Broadcasting Technology	Senior Associate Director, Planning & Programming Division, International Planning & Broadcasting Department, NHK
Mr. Ichiro Fukuhara	Cooperation Planning	ICT Team, Group III, Social Development Department, JICA

### 1-3 Schedule of the Final Evaluation

The Japanese Team visited Bhutan from January 22, 2007 to January 31, 2007. Both the Japanese and Bhutan Teams had conducted the following activities for the final evaluation study.

Date	Time	Activities
22 Jan (Mon)	AM	Arrive at Paro International Airport
	PM	Courtesy Call on Secretary, Ministry of Finance
23 Jan (Tue)	AM	Meeting with Bhutanese Evaluation Team Courtesy Call on Managing Director, BBS Meeting with BBS
	PM	Meeting with Mr. Kikumura (JICA expert)
24 Jan (Wed)	AM	Courtesy call on Secretary, Ministry of Information and Communications Meeting with Bhutan Info, Com and Media Authority
	PM	Meeting with BBS
25 Jan (Thu)	AM	Courtesy Call on Managing Director, Bhutan Telecom
	PM	Meeting with CATV Operator
26 Jan (Fri)	AM	Move to Bumthang from Thimphu
	PM	Meeting with BBS of Bumthang branch office
27 Jan (Sat)	AM	Visit to BBS Bumthang Branch Office Visit to Village in rural area (Zangtherpo)
	PM	Move to Trongsa from Bumthang
28 Jan (Sun)	AM	Move to Thimphu from Trongsa
	PM	Visit to Village in rural area (Rukubji)
29 Jan (Mon)	AM	Discussion on the Minutes of Meeting
	PM	Meeting with Other Japanese Mission Team
30 Jan (Tue)	AM	Signing of the Minutes of Meeting
	PM	Report to JICA office
31 Jan (Wed)	AM	Depart to Bangkok from Paro
	PM	

### 1-4 Method of Evaluation

#### 1-4-1 Procedure of Evaluation

According to the "JICA Evaluation Guidelines," the basic evaluation procedure consists of three steps. The first step is to confirm the achievements of the Project in terms of inputs, activities and outputs stated in the PDM and to examine the implementation process of the Project. The second step is to judge by the Five Evaluation Criteria, namely relevance, effectiveness, efficiency impacts and sustainability, the contents of which will be described



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later. As the third step, based on the results of the steps 1-2, recommendations for the Project during the Project period and after the completion of the Project and lessons learned from the Project for future or similar projects are extracted.

#### 1-4-2 Criteria of Evaluation

The five criteria for evaluation under the JICA Evaluation Guidelines are as follows.

1. Relevance:

Whether the Project is suited to the priorities and policies of the target group, recipient and donor countries ODA needs.

2. Effectiveness:

The extent to which the Project purpose has been achieved via the Outputs of the Project itself.

3. Efficiency:

Productivity of the implementation process. Outputs -qualitative and quantitative- in relation to the inputs.

4. Impact:

Positive and negative, primary and secondary long-term effects produced by the Project, directly or indirectly, intended or unintended.

5. Sustainability:

Whether the benefits of an activity are likely to continue after donor funding has been withdrawn, centering on the self-reliance of the project.

#### 1-4-3 Sources of Information

The following sources of information were used for this evaluation study

(1) Survey of the documents

- The Minutes of Meeting signed by the Bhutan Authorities and JICA during the Implementation Study on 15 June 2005
- Project Progress reports
- BBS Documents (Progress reports, HRD Master Plan, 9<sup>th</sup> Five Year Plan document)
- Other related documents (Population and Housing Census of Bhutan 2005, Vision 2020)

(2) Interview

- Interview with counterparts of BBS and other authorities in Bhutan
- Interview with the Japanese expert
- Interview with the local people
- Interview with local CATV operator

(3) Questionnaires

- Questionnaires for counterparts



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#### (4) Observation

- Observation of facilities, machineries and equipment
- Observation of rural areas in Bhutan

#### 1-4-4 Project Design Matrix for Evaluation (PDMe)

The joint evaluation team used the Project Design Matrix for Evaluation (PDMe) as a basic tool of evaluation, which was made for this final evaluation as shown in ANNEX 1. PDMe is based on the scope of this project, which is described in the Minutes of Meeting signed on 15 June, 2005.

## 2 Outline of the Project

### 2-1 Background of the Project

BBS is a public service broadcast station dedicated to socio-economic development of the people using electronic media; radio, television and Internet service. The Royal Government of Bhutan (hereinafter referred to as "RGoB") places high priority to the development of radio and television services as tools for education, information and increased people's participation in decision making process. BBS's main objective during 9th Five Year Plan is to ensure a better-informed and educated public.

Bhutan is a mountainous country with majority of the population living in valleys isolated by deep gorges and rivers making intra and interregional travel difficult and subjected to seasonal and climatic variations. Given the formidable geographical setting, low literacy and income levels, good communication facilities play a vital role in the socio-economic development.

Television broadcasting service was started in June 1999 with a small studio. When the Project was started, the network coverage was still limited within Thimphu valley. The rest of the country was able to view the BBS programmes through recorded VHS tapes, which were distributed by public transport system. It causes three or four days delay of viewing programmes in some remote areas. Under this circumstance, BBS has decided to lease the satellite system from Indian government to expand the nation-wide TV network system. However, the transmission system was still required for a sustainable network.

BBS is also strongly expected to promote the Bhutanese culture-oriented programmes based on one of the RGoB's country strategies; preservation of the tangible and intangible culture and traditions. BBS plays a crucial role as a national broadcast to inform, educate and entertain the people to support national cohesion and integration. A well trained and efficient technical department will be able to plan, design, install and operate the studios and transmission network efficiently in order to meet the production and requirements, and stabilize transmission time. Then, it will provide more efficient public broadcasting service.

Based on the implementation study discussion in June 2005, the Project was launched in June 2005, with a two-year implementation period.

## 2-2 Summary of the Project

The Project implementation period is for 2 years, from 16, June 2005 to 15, June 2007. The Project design is as follows.

### 2-2-1 Overall Goal

To establish the broadcasting network system to provide information appropriately and promptly all over the country

### 2-2-2 Project Purpose

To enhance the capacity of BBS in multi-sector programmes production and TV broadcasting services

### 2-2-3 Outputs

- (1) Establishment of control and monitoring system of TV network
- (2) Improvement of capacity of TV programmes production
- (3) Enhancement of system to organize the news programmes production and broadcasting
- (4) Improvement of capacity of outdoor programmes production and live telecast function

## 3 Performance of the Project

The Joint Evaluation Team assessed the performance of the Project as follows

### 3-1 Achievement of the Inputs

Inputs of both Japanese and BBS sides are summarized as follows.

#### 3-1-1 Japanese side

- |                       |  |
|-----------------------|--|
| 1) Long term experts  | 1  |
| 2) Short term experts | 3 (1 in 2005 & 2 in 2006)  |
| 3) Major Equipment    | Equipment for OB-VAN, Master Control Room, Optical Terminal, Studio, and Outside Transmission and Engineering. (ANNEX 6) |



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- 4) Operating cost 117,684,000 Yen (1Yen = 2.7 Nu)
- 5) Acceptance of C/P training 2(1 in 2005 & 1 in 2006)

3-1-2 Bhutan side

- 1) Personnel 6 people (ANNEX 8)
- 2) Facilities Provision of space for the installation of MCR, cables, connectors and office space for expert
- 3) Others Customs duties, internal taxes and other charges

**3-2 Achievement of the Outputs**

Results of the achievement of each output based on the indicators in the PDME are as follows

Output 1: Establishment of control and monitoring system of TV Network

Indicators:

- 1- 1) Local material is timely gathered to Thimphu broadcasting station once a week.

**Result:** Local material for TV programme is gathered three times a week through recorded DV tapes. It takes several days for the tapes to reach BBS Thimphu from the bureaus as tapes are sent via public transport system. A test for programme and information gathering system using optical fiber was successful. BBS will jointly establish the optical-fiber-based gathering system with Bhutan Telecom (BT). This will allow timely collection of local materials from the bureaus. It can be achieved by the end of the project period.

Output 2: Improvement of capacity of TV programme production

Indicators:

- 2-1) 35 BBS original TV programmes are produced and broadcast in a week  
(as of 2005.6: 26 programmes)

**Result:** BBS produces a minimum of 35 programmes in a week. BBS also outsource programmes from local production companies once a week. It also broadcast a Japanese drama series, "Oshin" funded by Japan, once a week. The programme production system has been streamlined with emphasis on teamwork, planning and through a system of programme preview and review. It has been achieved.

Output 3: Enhancement of system to organize the news programmes production and Broadcasting

Indicators:

- 3-1) Producing special news programme once a week

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(as of 2005.6: No special news programmes)

**Result:** A special news with in-depth analysis and commentary is produced three times a week (two in Dzongkha & one in English). A new TV news studio has been established which will be used exclusively for news production. The existing studio will be used for programmes. This indicator can be achieved by the end of project period.

3-2) Broadcasting emergency news programmes more than once during the project

(as of 2005.6: No emergent news programmes)

**Result:** BBS is almost ready to cover emergency incidents in Bhutan (eg. forest fire, bus accidents, etc.). The breaking news will be reported both in text and picture.

The achievement of this indicator can be further speed up with dispatching of Japanese short-term expert and accepting the counterpart training in Japan for news program production in 2007.

Output 4: Improvement of capacity of outdoor programme production and live telecast function

Indicators:

4-1) Live broadcast once a week

(as of 2005.6: once a month)

**Result:** Live broadcast was carried out during important national events like the opening of the National Assembly Session, archery tournaments (Bhutanese national sport) and important panel discussions using FPU and OB-VAN. The management of Live broadcast in Thimphu has been enhanced through advance planning, systematic management and team work. However, further efforts are needed to realize regular live broadcast by the end of the Project.

### 3-3 Achievement of the Project Purpose

The Project Purpose is “To enhance the capacity of BBS in multi-sector programmes production and TV broadcasting services”. The verifiable indicators for the Project purpose are as follows

Indicator: A base to properly broadcast necessary information to Bhutanese is established.

**Result:** According to the “National Survey on Radio and Television in Bhutan 2006”, BBS is recognized as the most regularly watched channel among various TV channels including local CATV operators. This result indicates that BBS is successful in disseminating reliable and effective information to Bhutanese. However, a system needs to be established for timely gathering of local materials.

In short, despite some challenges the project purpose can be achieved by end of project period.





### **3-4 Achievement of the Overall Goal**

The overall goal of the Project is “To establish the broadcasting network system to provide information appropriately and promptly all over the country”. The Project has been almost successful as stated above. The foundation for the capacity of BBS for a broadcasting network system will be established during the Project period. In addition to the sustainable implementation of the Project, the programme production capacity must be enhanced to achieve the Overall Goal. Additional facilities and equipment are indispensable to disseminate information to all Bhutanese. This will help BBS to consolidate its role as the public service broadcaster. In addition to achieving its Overall Goal, BBS faces a daunting challenge with major political changes taking place in the country. BBS will be required to play a major role in ushering parliamentary democracy in 2008. In this regard, BBS is urgently required to develop its technical and professional capacity.

## **4 Results of Evaluation by Five Criteria**

By analyzing the outputs of the Project, the Joint Evaluation Team was able to assess the project against the five criteria: relevance, effectiveness, efficiency, impact, and sustainability. The summary of the result is as follows

### **4-1 Relevance**

#### **4-1-1 Consistency with development policies/ programs in Bhutan**

BBS’s main objective during 9th Five Year National Development Plan (2002-2007 extended till 2008) is to ensure a better-informed and educated public. Therefore, this Project is consistent with development policies/ programs of Bhutan.

#### **4-1-2 Clarification with other donors’ assistance area**

BBS is leasing a satellite system from Indian government with the uplink system installed by ITU-D to expand the nation-wide TV network, while DANIDA played an instrumental role in Human Resource Development. The MCR is enhanced by providing equipment and training by Japanese expert in this Project. MCR plays a crucial role for uplink and sustainable operation of the satellite. Therefore, this Project has a synergistic effect with assistance from India and ITU-D to BBS. There is no duplication with other donors.

#### **4-1-3 Relevance with the JICA’s country programme**

JICA’s country programme for Bhutan places priority on improvement of media. Therefore, this Project is in line with JICA’s country programme.

### **4-2 Effectiveness**

Considering the Project Purpose of “To enhance the capacity of BBS in multi-sector



programmes production and TV broadcasting services”, it can be concluded that effectiveness of this Project is high based on the following findings.

A base for technical capacity to disseminate timely information to people in Bhutan will be established in this Project. Especially, Its live broadcasting ability has been enhanced through utilization of OB-VAN and FPU under the supervision of experience of JICA expert. It is expected that the cooperation between technical and programme production staff be strengthened.

Movement in BBS for coming democratization in 2008 will also help to achieve the Project purpose.

#### **4-3 Efficiency**

It can be said that efficiency of the Project is comparatively high based on the following

The new technologies and idea from Japanese Experts and the training in Japan were very effective. Almost all the equipment provided is maintained and utilized well. Bhutanese side provided the budget for cables and connectors to set up the facilities.

BBS staffs recognize the role of media in democratization in 2008. Bhutan side therefore has shown strong ownership during the Project. In addition, the daily technical-morning-meeting is functioning well to share information, which was started by the Japanese long-term Expert.

#### **4-4 Impact**

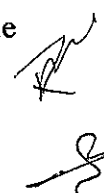
In addition to the partial achievement of the overall goal as mentioned in the achievement chapter, there are some unexpected positive impacts that have occurred. Ex-trainees presented the output of training course in Japan to other BBS colleagues. They implemented a study meeting to share knowledge and skills acquired from the trainings. In addition, Ex-trainees also trained other BBS colleagues, which contributed to the overall organizational capacity development of BBS. A few BBS staffs who worked under the ex-trainees on a daily basis became head of small BBS bureau office. Counterparts have a stronger sense of responsibility compared to the one before the Project started. No negative impact has been observed.

#### **4-5 Sustainability**

On completion of the Project, the outcome can be sustainable because of following reasons

##### **4-5-1 Organizational aspect**

BBS enjoys high reputation in the Kingdom of Bhutan. Every counterpart has continued to work in BBS and no body has or is expected to resign as of now. The impact of the Project in terms of skill sharing from C/P to other BBS staffs is being noticed. A few BBS staffs who worked under the ex-trainees on a daily basis became head of small BBS bureau office. On the other hand, BBS’s human resource development plan needs to be more systematic in line



with the sharp increase in new recruits.

#### 4-5-2 Technical aspect

Technical skills from the Japanese side contributed to the improvement of the level of technique in terms of basic utilization and the maintenance of equipment. BBS is expected to continuously take full responsibility for utilization, maintenance and replacement of equipment provided by the Project even after the completion of the Project.

#### 4-5-3 Financial aspect

In general, the financial situation of BBS is challenging. It is difficult to collect revenue from commercial advertisement because of the small market size. Further there is no scope for BBS as a public service provider to collect viewing fees. Therefore, continuous support from the government has to be anticipated for its sustenance.

### 5 Conclusion

As mentioned above, the Project has achieved most of the Outputs and the Project Purpose except the local material gathering system using optical fiber and microwave which will require the support of BT. A part of the Project Overall Goal has been achieved and the rest are expected to be achieved through synergistic effect and cooperation with other agencies, especially Bhutan Telecom (BT).

In conclusion, based on discussions in the prior chapters, it can be said that the Project will achieve its objectives by the end of the Project period. Therefore, the Joint Evaluation Team concluded that JICA technical cooperation would be completed on June 15, 2007 as scheduled.

### 6 Recommendations

#### 6-1 Recommendations relating to the remaining period of the Project

- (1) The gathering system using optical fiber should be established.
- (2) The test of gathering system using microwave should be done.
- (3) The cooperation between technical and programme production staff, be strengthened and work more closely.
- (4) Renewal Plan of equipment provided should be examined considering the depreciation.

#### 6-2 Recommendations after the completion of the Project

- (1) BBS is urgently required to develop its technical and professional capacity as it has to play a crucial role to usher in parliamentary democracy in 2008.

- (2) A regular in-house training system needs to be developed for the sustainability of the Project.
- (3) Promote professionalism amongst BBS staff to strengthen the role of BBS.
- (4) Quality of TV programmes should be enhanced through better planning and coordination.
- (5) BBS should carry out more live broadcast.
- (6) More studio-based programmes should be produced.
- (7) Regional programme production should be enhanced.

## 7 Lessons Learned

The lessons learned from the Project are as follows

- (1) PDM should be shared among the stakeholder for proper implementation and regular monitoring of the Project.
- (2) Combination of a long-term expert and a few short-term experts is efficient and effective in transferring technical know-how and skills.



## LIST OF ANNEXS

- ANNEX 1 Project Design Matrix (PDM) for Evaluation
- ANNEX 2 Evaluation Grid for the Final Evaluation
- ANNEX 3 Plan of Operation (PO) and Its Achievement
- ANNEX 4 Dispatch of Japanese Experts
- ANNEX 5 Counterpart Training in Japan
- ANNEX 6 List of Machinery and Equipment Provided by the Japanese Side and  
Equipment Carried by Japanese Experts
- ANNEX 7 Expenditures for the Project by the Japanese Side
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- ANNEX 9 Schedule and its Achievement



**Project Design Matrix for evaluation (PDMe)**

Project: "Enhancement of the Bhutan Broadcasting Service" Duration: 2005.6.16 - 2007.6.15 Target Places: Thumpu Target Group: BBS Drafted on 2007.1.23 ANNEX1

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><b>OVERALL GOAL</b> To establish the broadcasting network system to provide information appropriately and promptly all over the country</p> <p><b>PROJECT PURPOSE</b> To enhance the capacity of BBS in multi-sector programmes production and TV broadcasting services</p> <p><b>OUTPUTS</b></p> <ol style="list-style-type: none"> <li>1. Establishment of control and monitoring system of TV network</li> <li>2. Improvement of capacity of TV programmes production</li> <li>3. Enhancement of system to organize the news programmes production and broadcasting</li> <li>4. Improvement of capacity of outdoor programmes production and live telecast function</li> </ol>	<p>A base to properly broadcast necessary information to Bhutanese is established.</p> <ol style="list-style-type: none"> <li>1.1 Local material is timely gathered to Thimpu broadcasting station once a week.</li> <li>2.1 35 BBS original TV programmes are produced and broadcasted in a week (as of 2005.6: 26 programmes)</li> <li>3.1 Producing special news programmes once a week (as of 2005.6: No special news programmes)</li> <li>3.2 Broadcasting emergency news programmes more than once during the project (as of 2005.6: No emergent news programmes)</li> <li>4.1 Live broadcast once a week (as of 2005.6: once a month)</li> </ol>	<ol style="list-style-type: none"> <li>1.1 TV programs, Interview</li> <li>2.1 TV programs, Interview</li> <li>3.1 TV programs, Interview</li> <li>3.2 TV programs, Interview</li> <li>4.1 TV programs, Interview</li> </ol>	
<p><b>Activities</b></p> <ol style="list-style-type: none"> <li>1.1 Establish the master control/ circuit control center</li> <li>1.2 Establish the two-way TV system using optical-fiber in Western Part of Bhutan</li> <li>1.3 Conduct the pilot test of news and programme gathering system using micro wave systems in Eastern Part of Bhutan.</li> <li>2.1 Improve the production management system</li> <li>2.2 Train production staff through on-the-job training to improve the programme production and composition</li> <li>2.3 Conduct the training seminars on the improvement of the quality of the community based TV productions</li> <li>3.1 Establish the independent TV news studio</li> <li>3.2 Train news staff through on-the-job training</li> <li>3.3 Enhance the broadcasting system of the emergency news programme</li> <li>3.4 Conduct the seminars to enhance capacity of the news coverage</li> <li>4.1 Increase rural area participation in programme production through the use of Outdoor Broadcasting (OB) VAN and Field Production Unit (FPU) system</li> <li>4.2 Improve the operation and maintenance management system by training the staff</li> </ol>	<p><b>Inputs</b> (By Japan)</p> <ol style="list-style-type: none"> <li>1. Long-term Expert :             <ol style="list-style-type: none"> <li>1) Broadcasting engineering 2005.6.16-2007.6.15</li> </ol> </li> <li>2. Short-term Expert :             <ol style="list-style-type: none"> <li>1) TV Program production 2005.9.22-2005.10.21</li> <li>2) Transmission technology 2006.2.21-2006.3.21</li> <li>3) TV Program production and program operation 2006.11.22-2006.12.21</li> <li>4) News report programming 2007.3.6-2007.4.5 (planned)</li> </ol> </li> <li>3. Counterpart training in Japan             <ol style="list-style-type: none"> <li>1) TV program production 2005.7.5-2005.9.24</li> <li>2) Television Engineering 2006.7.5-2006.9.9</li> <li>3) News program production 2007.2.5-2007.3.22 (planned)</li> <li>4) VTR Operation 2007.1.29-2007.2.26 (planned)</li> </ol> </li> <li>4. Equipment : Camera system for OB-VAN, Equipment for master control room, Optical terminal apparatus, rely equipment, and so on.</li> </ol> <p>(By Bhutan)</p> <ol style="list-style-type: none"> <li>1. Counterpart:             <ul style="list-style-type: none"> <li>Chief Engineer, and Technical Staff (24+24x3) MM</li> <li>Senior Producer 24MM</li> <li>Senior Engineer 24MM</li> </ul> </li> <li>2. Facilities:             <ul style="list-style-type: none"> <li>Provision of office space and facilities for JICA experts.</li> <li>3. Local Cost: Allocation of Budget 500,000Nu</li> </ul> </li> </ol>		

Evaluation Grid  
Final Evaluation for the Project on Enhancement of Bhutan Broadcasting Service

Five Criteria Others	Questions		Information Collected
	Evaluation Question	Others	
Relevance	Are the project objectives consistent with development policies/ programs in Bhutan?		BBS main objective during 9th Five-year National development Plan is to ensure a better-informed and educated public.
	Were the project objectives consist with needs of the target area/ people?	Were the project objectives consistent with Needs of BBS?	The Project Purpose is "To enhance the capacity of BBS in multi-sector programmes production and TV broadcasting services". BBS plays a crucial role as a national broadcast to inform, educate and entertain the people to support national cohesion and integration, and it is in line with the Project Purpose.
	Is there a clarification with other donors about assistance area?	Is there synergistic effect by assistance from India and ITU to BBS?	BBS has leased the satellite system from Indian government with uplink by ITU to expand the nation-wide TV network system. The master control room, which is enhanced by provided equipment and training of utilization by Japanese expert, plays a crucial role for uplink and sustainable operation of satellite.
		Is there duplication with assistance from India to BBS? Or Does the assistance from donors to cover overall goals?	Establishing the nation-wide TV network system is not the mandate of the project, which is assisted by Indian government. This shows there is no duplication.
		Was there ascendancy of on Japanese technology?	Japan has the strong knowledge in the field of broadcasting to advise for future digitalization and other future direction inclusively and efficiently. Japanese makers also have a priority in equipment of broadcasting.
	Are the project objectives consistent with development policies/ programs of Japan for Bhutan?	Does the project have the relation with the priority areas of Japanese assistance? Does the project have the relation with the JICA's country program ?	No data JICA's country program for Bhutan places priority on improvement of media. From this point of view, this Project is in line with JICA's country strategy

Five Criteria	Questions		Information Collected
	Evaluation Question	Sub-Question	
Effectiveness	Is Project Purpose likely to be achieved?	Is Project Purpose likely to be achieved?	BBS got the capacity to utilize the broadcasting technology for product the accurate and informative program to some extent. But, it has not been established the system to gather the local materials timely, and BBS still doesn't have an enough capacity to create the TV programme contents of quality. In this sense, although there are some problems to be solved from now, the project purpose is almost likely to be achieved.
	Were Project Outputs adequate to achieve the Project Purpose?	Does BBS have the information network to provide necessary information to necessary Place?	A base to disseminate the timely information for people in Bhutan through broadcasting is established. Especially, their live broadcasting ability has been enhanced thorough on-the job training for utilization of OB-VAN and FPU.
		Does BBS have the ability to produce the good quality TV program?	Some staffs produce the good quality programmes, but others are not. It depends on the producer who produce the programmes. So, the capacity to produce the good quality TV programmes should be improved organizationally.
	What are inhibiting factors for achieving	Is the equipment from JICA utilized properly and maintained well?	The equipment is utilized properly by BBS staff, but the maintain ability has not been reached to the proper level yet. So, it should be done to get the ability to maintain the existing equipment maximally till the Project is finished.
		Did the project receive any negative effects by job changing or leaving of C/P?	Were there any factors to contribute to achieve the Project Purpose?
			C/P didn't change the job.



	Project Purpose?	Did the project receive any other negative effects?	The technical staff can get the capacity in this project but the programme production staff cannot get the capacity much because this project put important on technical point relatively. There will be the synergetic effect to establish the cooperative system between technical staff and programme production staff.
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Five Criteria	Questions		Information Collected
	Evaluation Question	Sub-Question	
Efficiency	Were Inputs good of quality, quantity and timing for carrying out?	Is the number of dispatched Japanese Experts, their special field, ability, dispatched timing and period appropriate?	The new technologies and idea from Japanese Experts are very effective and dispatch period was good timing. It is appropriate.
		Is the kind, amounts, set up period of provided equipment appropriate?	The training course was very effective but the number of training in Japan was not enough in the Project. It is appropriate.
		Is the number of trainee in Japan, the contents of training course, training period, and timing of training appropriate?	It is appropriate.
		Is the number of C/P, allocation timing and their ability appropriate?	It is appropriate.
		Is the quality of equipment, their scale, and convenience appropriate?	Budget of Cables and connectors for the setting up of the facilities is from Bhutan side. It is difficult to get the revenue from advertisement because the market in Bhutan is very small.
		Is the project budget from Bhutan side appropriate scale?	BBS staffs learn how to operate the equipment for broadcasting such as MCR.
		Did the development of the capacity of the C/P contribute to achieve the project purpose?	The daily morning meeting is functioned well for information sharing.
		Was the meeting between BBS and Japanese Expert properly functioned?	BBS staffs recognize the role of media for democratization in 2008. So, Bhutan side could have strong ownership during the Project.
		Does Bhutan side have strong ownership?	Good.
		Is the project management appropriate?	Nothing
	What are inhibiting factors for efficiency?		
	Is there any other factors to inhibit efficiency?		

Five	Questions	Information Collected
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Criteria	Evaluation Question	Sub-Question
Impact	Is Overall Goal likely to be achieved as an effect of the project?	It is likely to be achieved.
	Is there a case to spread the broadcasting technologies from ex-trainee of training course in Japan to other BBS staff? Is the result of training in Japan utilized?	Ex-trainees presented the output of training course in Japan to other BBS colleagues. They implemented a study meeting to share knowledge and skills acquired from the trainings. In addition, Ex-trainees also trained other BBS colleagues, which contributed to the overall organizational capacity development of BBS. A few BBS staffs who worked under the ex-trainees on a daily basis became head of small BBS bureau office.
	Are there any other impacts? Were there positive and negative impacts other than Overall Goal?	Counterparts have a stronger sense of responsibility compared to the one before the Project started.

Evaluation Question	Sub-Question		Information Collected
	Evaluation Question	Sub-Question	
Sustainability	Is the national policy support to the expansion of broadcasting function likely to continue after the Project period? How is the project positioned for BBS?		BBS main objective during 9th Five-year National development Plan is to ensure a better-informed and educated public. Other BBS staff, which is not the counterpart can join partly in the Project. So, the position of the Project is important
	Does BBS have an ability to continue the outcome of the project after finishing the project? (Organizational aspect)	Does BBS have an ability to manage and administrate? Does C/P expect to stabilize the workforce well after finishing the project	the daily technical-morning-meeting is functioning well without Expert to share information, which was started by the Japanese long-term Expert. Every counterpart has continued to work in BBS and no body has or is expected to resign as of now.
		How does the result of the project spread from C/P to New employees?	The impact of the Project in terms of skill sharing from C/P to other BBS staffs is being noticed. A few BBS staffs who worked under the ex-trainees on a daily basis became head of small BBS bureau office. On the other hand, BBS's human resource development plan needs to be more systematic in line with the sharp increase in new recruits.

	Does BBS have an ability to continue the outcome of the project after finishing the project? (Financial aspect)	Can BBS keep the budget to purchase and maintain the needed equipment?  Is there a perspective that provided equipment can be well maintained financially?  Is the financial condition good?	It is difficult to collect revenue from commercial advertisement because of the small market size. Further there is no scope for BBS as a public service provider to collect viewing fees. Therefore, continuous support from the government has to be anticipated for its sustenance.  See above
Does BBS have an ability to continue the outcome of the project after finishing the project? (Technical aspect)	Can BBS relay and product the program using provided equipment without assistance of Japanese expert after finishing the project?  Is there a perspective that provided equipment can be well maintained technically?  Will the provided equipment by JICA be used if the other donors provide the broadcasting equipment?	See above  Technical skills from the Japanese side contributed to the improvement of the level of technique in terms of basic utilization and the maintenance of equipment. It should be more trained to BBS staff for wide activity by utilizing it.  See above.	
What are promoting and inhibiting factors for sustainability?		The MCR is enhanced by providing equipment and training by Japanese experts in this Project. So, assistance from other donors will be synergistic with equipment for MCR by JICA  It is difficult to catch up the new technology without transferring by Japanese experts.  BBS have the high ownership it recognized to have to play a crucial role to usher in parliamentary democracy in 2008.	

ANNEX 3

Plan of Operation (PO) and its Achievement

Detailed Activities	First Year												Second Year					Option
	2005FY						2006FY						2007FY					
	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	5th	6th	
(1-1) Establish Master/circuit control center																		the delivery date of the related equipment is delayed, and the introduction of the related cable equipment is delayed.
(1-2) Establish the TV network system with other rural areas using optical-fiber in Western Part of Bhutan																		the procurement date of fiber cable and connector equipment is delayed.
(1-3) Prepare the TV network system with other rural areas using micro wave systems in Eastern Part of Bhutan																		in process.
(2-1) Establish the independent TV production studio																		the news studio has already set up for recording with out TV set. TV set will be introduced until the Project is finished.
(2-2) Improve BBS's production system																		FPU and OB-VAN are well utilized, but the news studio is not completely set as mentioned above.
(2-3) Train production staff through the on-the-job training to improve the programme production and composition.																		in process.
(2-4) Conduct the training seminars on the improvement of the quality of the community based TV productions																		The training in BBS was conducted well. Seminar for other than BBS has not been conducted.
(3-1) Establish the independent TV news studio																		delivery date of the related equipment was delayed. The news studio already set up for recording without TV set. TV set will be introduced until the Project is completed.
(3-2) Train news programme staff through the on-the-job training																		Japanese short-term expert will be dispatched from March to April, 2007.
(3-3) Enhance the broadcasting system of the emergency news programme																		Japanese short-term expert will be dispatched from March to April, 2007.
(3-4) Conduct the seminar to enhance the capacity of the news coverage																		Japanese short-term expert will be dispatched from March to April, 2007.
(4-1) Increase rural area participation in programme production through the use of Outdoor Broadcasting(OB) VAN and Field Production Unit(FPU). <span style="font-size: small;">འཕྲིན་འཕྲོད་ཁུངས་</span>																		this activity has been done through the Project for corresponding to the any situation.
(4-2) To improve the operations management system of Outdoor Broadcasting technique by training the technical staff																		this activity has been done through the Project for corresponding to the any situation.

Legend : Plan — : Implemented

## Dispatch of Japanese Experts

## A. Short Term Experts

## JFY2005

No.	Time	Name	Purpose
1	22/09/05 ~ 21/10/05	Satoshi Ogata	TV Program Production
2	21/02/06 ~ 21/03/06	Nobuyoshi Takeda	Transmission Technology

## JFY 2006

No.	Time	Name	Purpose
1	22/11/06 ~ 21/11/06	Kenzo Muroi	TV programme operation and production engineering
2	06/03/07 ~ 05/04/07	Planned	News Production

## B. Long term Experts

No.	Time	Name	Purpose
1	16/06/05 ~ 15/06/07	Hajime Kikumura	Broadcasting Engineering

## Counterpart Training in Japan

## JFY 2005

No.	Time	Name and Occupation	Purpose and Contents
1	05/07/05 ~ 24/09/05	Kinga Penjor, TV Producer	Television Program production To continually produce programs that pursue the truth effectively and raise the level of expertise with regard to the themes and fields of the programs that they produce

## JFY 2006

No.	Time	Name and Occupation	Purpose and Contents
1	05/07/06 ~ 09/09/06	Panchaman Rai, TV Studio Engineer	Television Engineering To learn the basic system and function of TV broadcasting equipment and improve techniques for operating and adjusting of the equipment for efficient TV programme production. To conduct periodic maintenance of major DV and DVCAM format VTR by using service manual.
2	29/01/07~16/02/07 (Planned)	Tharchen Sherub, TV Studio Engineer	VTR Maintenance & Operating Training
3	05/02/07~17/03/07 (Planned)	Conam Rinchen, Reporter	Television Program Production & News Production

Equipments provided by Japanese Side (procurement from Japan)

ANNEX 6

Item	Equipment	Type	Manufacture	Qty.	Total Price (¥) (¥1M=1,000,000)	Total Price (Rs)	Purpose	Place	Situation A: daily use B: ad-hoc use C: will use in future	description
1-1	BBC-MCR Equipment									
1-1	Digital Audio Video Switcher	AG-MX70	Panasonic	1	¥801,700	320,680	Audio Video Switching	MCR	A	On Air Matrix
	Accessory (adaptor)	RB-P005		1			Power Plug Adaptor	MCR	A	
	260V			3			Video Patch Panel	MCR	A	
1-2	Video Patch Panel	VP0005-8C	Canare	30	¥216,000	86,400	Video Patch Cable	MCR	A	
	Accessory: Patch Cable (.5m)	BCJ-Vp		30			BNC Cable Connector	MCR	A	
	Accessory: Video Plug	32XP-H		3			Audio Patch Panel	MCR	A	
1-3	Audio Patch Panel	TC005	Canare	30	¥621,000	248,400	Audio Patch Cable	MCR	A	
	Accessory: Terminator	L3C		30			Terminator	MCR	A	
	(800Ω)									
1-4	Patch Cable (1m)	TC02-X1	Canare	10	¥26,000	10,400	Audio Patch Cable	MCR	A	
1-5	Patch Cable (2m)	TC02-X2	Canare	10	¥24,000	9,600	Audio Patch Cable	MCR	A	
1-6	Digital Audio Recorder	DSR-45P	Sony	2	¥1,254,000	10,400	Audio Recorder	TMS (TV News Studio) / DS-VAN	A	
	Accessory: Rack mount adaptor			4				RSD Room	A	
1-7	audio video distributor	DA-144	Imagenics	5	¥185,000	74,000	V.A Distribution	MCR	A	
	Accessory: Rack mount adaptor	MK-100		5				MCR	A	
1-8	audio video matrix	SMX-1616AV	Imagenics	1	¥690,000	276,000	V.A Matrix Switcher	MCR	A	
1-9	audio video matrix	SMX-85AV	Imagenics	1	¥263,000	105,200	V.A Matrix Switcher	Tx Room	A	
1-10	audio video distributor	LR-122	Imagenics	7	¥378,000	151,200	V.A Distribution	MCR	A	
	Accessory: Rack mount adaptor	MK-100		7					A	
1-11	Noise Eliminator	HE-89	Asaka	6	¥282,000	112,800	Noise reduce	Plan Control	A	
1-12	Video Signal Generator	TG700		2			Test Signal generator	MCR	A	
	Accessory (analog TV signal Generator)	AVG7	Textronics	2	¥1,492,000	596,800	Audio Signal Adaptor	MCR/Copy Room	A	
	Accessory: Instruction Manual			4				RSD Room	A	
	Accessory: Service Manual			6				RSD Room	A	
1-13	Multi-Viewer Unit	MV-40F/P	For-A	1	¥207,300	82,920	Multi-viewer	MCR / TMS	A	
	Accessory: Rack mount adaptor			1					A	
1-14	Audio Monitor Amplifier	VAS-2 II	Excellent Ohya	5	¥850,000	340,000	Audio Monitor	MCR(3), TX Room, Copy Room	A	
1-15	Audio and Video Matrix	MAT-1010	Excellent Ohya	1	¥1,280,000	512,000	Audio and Video Selector	MCR	A	
1-16	Waveform Monitor (PAL)	1741A	Textronics	2	¥2,194,000	2,194,000	Video Signal Measurement	MCR	A	
	Accessory: Rack mount adaptor	WFN7F05-00		2					A	
	Accessory: Users' Manual			4					A	

2-1	Optical Fiber Terminal Equipment																	
2-2	Optical Transmitter	97150T-LD-ST	IDK															
2-3	Optical Receiver	97150R-LD-ST	IDK															
2-4	AC Power Adapter	9011PS	IDK															
2-5	Audio Video Distributor (4 outputs)	DA-144	Imagenics															
2-6	Audio Matching Amplifier	BUC-160	Imagenics															
2-7	Audio Matching Amplifier	UBC-160	Imagenics															
2-8	Audio Video Distributor	LR-122	Imagenics															
2-9	Audio Monitor Amplifier	MA-100	Excellent															
2-10	Color Video Monitor	VAS-2 II	Excellent															
2-11	Waveform Monitor (PAL)	LMD-1410	Sony															
2-12	Instruction Manual	MB-526	Textronics															
2-13	Accessory: Rack Mount Unit	1741A																
2-14	Accessory: Rack Mount Unit	WF7F05-00																
2-15	Instruction Manual																	
3-0B	Van Equipment																	
3-1	Video Cameras	Z-3500	HiTech															
3-2	Video Disk Recorder	DSR-DR1000AP	Sony															
3-3	Color Video Monitor	LMD-9080																
3-4	Audio Recorder	VF-509																
3-5	Accessory: Rack Mount Adaptor	MB-525																
3-6	Instruction Manual																	
3-7	Accessory: Rack Mount Adaptor																	
3-8	Instruction Manual																	
3-9	Audio Recorder	HD-C01	TASCAM															
3-10	Instruction Manual																	

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ANNEX 6

Item	Equipment	Type	Manufacture	Qty.	Total Price (¥)	Total Price (th)	Purpose	Place	Situation	description
1	BBQ-MCR Equipment									
1-1	Digital Audio Video Switcher	AG-MX70	Panasonic	1	¥801,700	320,680	Audio Video Switching	MCR	A	On Air Matrix
	Accessory: (adaptor)	RM-P005		1			Power Plug Adapter	MCR	A	
	Accessory: Video Patch Panel	263V		3			Video Patch Panel	MCR	A	
1-2	Video Patch Panel	VP005-BC	Canare	30	¥216,000	86,400	Video Patch Cable	MCR	A	
	Accessory: Patch Cable (1.5m)	BC-J-VP		30			BNC Cable Connector	MCR	A	
	Accessory: Video Plug	32XP-H		30			Video Patch Panel	MCR	A	
1-3	Audio Patch Panel	10005	Canare	30	¥621,000	248,400	Audio Patch Cable	MCR	A	
	Accessory: Patch Cable (1.5m)	L3C		30			Terminator	MCR	A	
	Accessory: Terminator									
1-4	Patch Cable (1m)	T002-X1	Canare	10	¥26,000	10,400	Audio Patch Cable	MCR	A	
1-5	Patch Cable (2m)	T002-X2	Canare	10	¥24,000	9,600	Audio Patch Cable	MCR	A	
1-6	Digital Audio Recorder	DSR-45P		2	¥1,254,000	10,400	Audio Recorder	MCR (TV News Studio) / OB-VAR	A	
	Accessory: Rack mount adaptor		Sony	2				MCR (TV News Studio) / OB-VAR	A	
	Instruction manual			4				MCR	A	
1-7	audio video distributor	DA-144	Imagenics	5	¥185,000	74,000	V.A. Distribution	MCR	A	
	Accessory: Rack mount adaptor	MK-100		5				MCR	A	
1-8	audio video matrix	SWX-1616AV	Imagenics	1	¥690,000	276,000	V.A. Matrix Switcher	MCR	A	
1-9	audio video matrix	SWX-55AV	Imagenics	1	¥263,000	105,200	V.A. Matrix Switcher	Ex Room	A	
1-10	audio video distributor	LR-122	Imagenics	7	¥378,000	151,200	V.A. Distribution	MCR	A	
	Accessory: Rack mount adaptor	MK-100		7					A	
1-11	Noise Eliminator	HE-89	Asaka	6	¥282,000	112,800	Noise reduce	Hus Control	A	
1-12	Video Signal Generator	TG700		2			Test Signal Generator	MCR	A	
	Accessory (analog TV signal generator)	AV67		2				MCR/Copy Room	A	
	Accessory: Instruction Manual		Textronics	4	¥1,492,000	596,800	Audio Signal Adapter	MCR	A	
	Accessory: Service Manual			6				MCR	A	
1-13	Multi-Viewer Unit	MV-40F/P	For-A	1	¥207,300	82,920	Multi-viewer	MCR / TMS	A	
	Accessory: Rack mount adaptor			1					A	
1-14	Audio Monitor Amplifier	VAS-2 II	Excellent Onkyo	5	¥850,000	340,000	Audio Monitor	MCR(3), TX Room, Copy Room	A	
1-15	Audio and Video Matrix	MAT-1010	Excellent Onkyo	1	¥1,280,000	512,000	Audio and Video Selector	MCR	A	
1-16	Waveform Monitor (PAL)	1741A		2			Video Signal Measurement	MCR	A	
	Accessory: Rack mount adaptor	WFN7F05-00	Textronics	2	¥2,194,000	2,194,000			A	
	Accessory: Users' Manual			4					A	

2 Optical Fiber Terminal Equipment																	
2-1	Optical Transmitter	9715DT-LD-ST	IDK		2	¥550,000	220,000		Optical Transmitter				WCR, BT Telcom	A			
2-2	Optical Transmitter	9715DT-L03-ST	IDK		2	¥778,000	311,200		Optical Transmitter				BT Para or BT P/line	C			
2-3	Optical Receiver	9715DR-L-ST	IDK		4	¥912,000	364,800		Optical Receiver				WCR, BT Telcom	A			
2-4	AC Power Adapter	9011PS	IDK		8	¥72,000	28,800							A			
2-5	Audio Video Distributor (4 outputs)	DA-144		Imagenics	3	¥111,000	44,400		Video audio Distribution				WCR, BT Telcom	A			
	Accessory: Rack Mount Unit	WK-100			3												
2-6	Audio Matching Amplifier	SUC-160		Imagenics	3	¥162,000	64,800		Audio Impedance Matching				Audio signal converter	C			
	Accessory: Rack Mount Unit	WK-100			3												
2-7	Audio Matching Amplifier	UBC-160		Imagenics	3	¥162,000	64,800		Audio Impedance Matching				Audio signal converter	C			
	Accessory: Rack Mount Unit	WK-100			3												
2-8	Audio Video Distributor	LR-122		Imagenics	6	¥324,000	129,600		Audio Video Distribution				WCR, BT Telcom	A			
	Accessory: Rack Mount Unit	WK-100			6												
2-9	Audio Monitor Amplifier	VAS-2-E		Essential Dkoyo	3	¥510,000	204,000		Audio Signal Monitoring				WCR, BT Telcom, TMS	A			
2-10	Color Video Monitor	LMD-1410			5				TV Monitor				WCR, BT, TMS	A			
	Accessory: Rack Mount Unit	MB-526		Sony	5	¥685,000	274,000							A			
	Instruction Manual	1741A			10									C			
2-11	Waveform Monitor (PAL)	WFM705-00		Textronics	5	¥5,485,000	2,184,000		Video Signal Monitor				WCR, BT Telcom, TMS	A			
	Accessory: Rack Mount Unit				5									A			
	Instruction Manual				10									C			
	3 OB Van Equipment																
3-1	Video Cameras	Z-3500		Hitachi Kokusai	1	¥28,252,000	11,300,800		Camera				OB-Van(3), TMS(2)	A			
3-2	Video Disk Recorder	DSR-BRT000AP			2									A			
	Accessory: Rack Mount Adaptor			Sony	2	¥1,778,000	711,200		Video Disc Recorder				OB-Van, WCR	A			
	Instruction Manual				4									A			
3-3	Color Video Monitor	LMD-9050			2									A			
	Accessory: ENG Kit	VF-509			2												
	Accessory: Rack Mount Adaptor	MB-525		Sony	2	¥1,098,000	439,200		TV Monitor				TMS	A			
	Instruction Manual				4												
3-4	Audio Recorder	WD-301		TASCAM	2	¥182,000	72,800		Audio Recorder				OB-Van, TMS	A			
	Instruction Manual				4												

Equipment carried by the Japanese experts

item number	Equipment	Type	Manufacture	Qty.	Total Price (¥) (1Nu=¥2.5)	Total Price (Nu)	Purpose	Place	Situation A: daily use B: ad-hoc use C: will use in future	description
1-1	Spectrum Analyzer	MS2711D	Anritsu	1	¥800,000	320,000	RF signal Monitor	R&D	Cheaking TV/Radio signal	Mr. Takeda
1-2	Dipole Antenna	MP534A/B	Anritsu	1	¥240,000	96,000	ditto	ditto	ditto	
1-3	Attenuator	MP721D	Anritsu	1	¥27,000	10,800	ditto	ditto	ditto	
1-4	Attenuator	MP721B	Anritsu	1	¥27,000	10,800	ditto	ditto	ditto	
1-5										
1-6	Projector Cable	ELPK002	EPSON	1	¥3,600	1,440	Conection between PC and Projector	R&D	Technical training	Mr. Takeda
1-7	Audio Transformer	TRB-612	Excellent Onkyo	3	¥85,500	34,200	Outside Broadcasting Equipment	R&D	OB-VAN	
1-8	Audio Transformer	TRB-662	Excellent Onkyo	3	¥85,500	34,200	Outside Broadcasting Equipment	R&D	OB-VAN	
1-9	Audio Transformer	TRB-622	Excellent Onkyo	3	¥108,300	43,320	Outside Broadcasting Equipment	R&D	OB-VAN	
2-1	Microwave Link (TX.)	GL-2400T	RF System Lab.	1	¥178,700	71,480	Outside Broadcasting Equipment	Preparing	OB-VAN	
2-2	Microwave Link (RX.)	GL-2400R	RF System Lab.	1	¥152,440	60,976	Outside Broadcasting Equipment	ditto	OB-VAN	
2-3	Case	AS550	RF System Lab.	2	¥42,850	17,140	Outside Broadcasting Equipment	ditto	OB-VAN	
2-4	Tripod		Srik	2	¥27,090	10,836	Outside Broadcasting Equipment	ditto	OB-VAN	

2-5 Interphone	NTS-703L CM2	Nihon Interphone	4	¥348,960	139,584	Outside Broadcasting Equipment	ditto	OB-VAN
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2-6 TV Audio Receiver	CR-ES235M			¥29,872	11,949	Outside Broadcasting Equipment	ditto	OB-VAN	Mr. Muroi
2-7 Walkie-Talkie	TH-K2	KENWOOD	4	¥82,400	32,960	Outside Broadcasting Equipment	ditto	OB-VAN	
2-8 Microphone	EMC-3		2	¥5,316	2,126	Outside Broadcasting Equipment	ditto	OB-VAN	
2-9 Microphone	SMC-34 (G)		2	¥7,680	3,072	Outside Broadcasting Equipment	ditto	OB-VAN	
2-10 Interface Cable	PG-4Y		1	¥3,780	1,512	Outside Broadcasting Equipment	ditto	OB-VAN	
2-11 Nickel Hydride Battery	PB-43N		4	¥15,780	6,312	Outside Broadcasting Equipment	ditto	OB-VAN	
2-12 Transformer	TRP-0150		4	¥96,820	38,728	Outside Broadcasting Equipment	ditto	OB-VAN	
3-1 Interphone	NTS-703LCM2	Nihon Interphone	3	¥288,000	115,200	Outside Broadcasting Equipment	ditto	OB-VAN	
3-2 Video Projector	EMP-TW200H	Epson	1	¥268,000	107,200	Video Projector	ditto	Training	

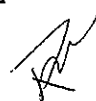
### Expenditures for the Project by the Japanese Side

	JFY2005	JFY2006	Total
<b>Dispatch of Study Team</b>			
(1,000Yen)	1,266	0	1,266
(1,000Nu)	469	0	469
<b>Dispatch of Experts</b>			
(1,000Yen)	18,471	20,502	38,973
(1,000Nu)	6,841	7,593	14,434
<b>Provision of Equipment</b>			
(1,000Yen)	67,031	4,448	71,479
(1,000Nu)	24,826	1,647	26,474
<b>Acceptance of C/P Training in Japan</b>			
(1,000Yen)	4,144	1,822	5,966
(1,000Nu)	1,535	675	2,210
<b>Total (1,000Yen)</b>	<b>90,912</b>	<b>26,772</b>	<b>117,684</b>
<b>Total (1,000Nu)</b>	<b>33,671</b>	<b>9,916</b>	<b>43,587</b>

\* Exchange Rate: 1 Nu = 2.7 Yen

**Assignment of Bhutan Counterparts**

<b>Name</b>	<b>Related Component and Responsibility</b>
Mr. Sonam Tobgyal	Chief Engineer, Technical Department
Mr. Rajesh Kafley	Executive Engineer, Operations/Maintenance Division
Mr. Dorji Wangchuk	Head, Transmission Unit
Mr. Panchaman Rai	TV Studio Engineer, Technical Department
Mr. Neten Dorjee	Manager, TV. Programme & Production Division
Mr. Kinga Penjor	TV Producer



ANNEX 9

Schedule and its Achievement

Objectives	Detailed Activities	Second Year												Result				
		2005FY						2006FY							2007FY			
		2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st					
Technical transfer by long-term expert  Technical transfer by short-term experts  Training in Japan  Follow-up Training by Distance Lecture  Provision of Equipment	Basic broadcasting technology																	In process
	Establish Master/circuit control center																	the delivery date of the related equipment is delayed, and the introduction of the related cable equipment is delayed.
	Set up news and program gathering service for west areas																	the procurement date of fiber cable and connector equipment is delayed.
	Set up TV signal receiving system from east areas (Trial test)																	In process.
	Improvement of OB-VAN and FPU																	this activity have been done through the Project is implemented for corresponding to the any situation.
	Improvement of TV programs and News programs																	this activity have been done through the Project is implemented for corresponding to the any situation.
	program production																	Mr. Satozhi Ozata was dispatched.
	Transmitter engineering																	Mr. Nobuyoshi Takeida was dispatched.
News program production																	Mr. Shigeya Akiyama will be dispatched.	
TV programme operation and production engineering																	Mr. Kenzo Muroi was dispatched.	
Program production course																		
Advance TV engineering and maintenance course																		VTR maintenance and operating training course is newly added depending on BBS.
News and current affairs production course																		
Follow-up Training by Distance Lecture																		JICA-Net didn't be provided to JICA Bhutan Office.
Provision of Equipment	MCR/CC, TV network service in west areas																	Digital FPU and AV switcher will be provided until the Project finished.
	Equipment for OB-VAN																	

■ : Plan    ▬ : Implemented



## 付属資料

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### 3. プロジェクトデザインマトリックス (PDM)

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**Project Design Matrix for evaluation (PDMe)**  
**ブータン国営放送支援プロジェクト**

(作成日：2007年1月17日)

改訂履歴：

実施期間：2005.6.16-2007.6.15

ターゲットグループ：

プロジェクトの要約	指標	指標データ入手手段	外部条件
<b>上位目標</b> ブータン国民が報道・生活情報を的確および迅速に視聴できる環境が確立される		1.	
<b>プロジェクト目標</b> 国営放送の番組制作能力と情報提供機能が向上する	ブータン国民に必要な情報が適切に提供される	1.	
<b>成果</b>			
1. 全国TVネットワークの運用管理・監視体制を確立する	1.1 地方発番組が週1回放送される (2005.6：2ヶ月に1回) 1.2 地方支局からの素材収集体制が確立される	1.1 番組表、質問票、インタビュアー	
2. 番組制作能力を向上させる	2.1 自主制作番組が週35番組放送される (2005.6：週26番組)	2.1 番組表、質問票、インタビュアー	
3. 報道番組編成体制を強化する	3.1 報道企画番組を週1回企画制作する (2005.6：0回) 3.2 緊急報道番組をプロジェクト期間中に1回以上実施する (2005.6：0回)	3.1 番組表、質問票、インタビュアー 3.2 番組表、質問票、インタビュアー	
4. 野外番組制作および中継機能強化する	4.1 生中継放送を週1回実施する。(2005.6：月1回)	4.1 番組表、質問票、インタビュアー	

<p><b>活動</b></p> <p>1.1 運用管理・監視体制強化のためのマスターコンテントロールーム/回線センターを構築する</p> <p>1.2 西部ブータン地区光ファイバーを利用して、端末を整備し、番組素材回線網を含む双方向のTVシステムを確立する</p> <p>1.3 東部ブータン地区マイクロ回線を利用して、端末を整備し、番組素材回線網確立のための準備を行う</p> <p>2.1 TV番組制作スタジオを構築する</p> <p>2.2 番組の制作体制を改善する</p> <p>2.3 番組制作スタッフへ制作手法を指導する</p> <p>2.4 地域参加番組制作手法の質向上の研修を実施する</p> <p>3.1 TVニューススタジオを構築する</p> <p>3.2 報道番組編成手法の研修を実施する</p> <p>3.3 緊急報道体制を確立する</p> <p>3.4 報道番組取材能力強化のための研修を実施する</p> <p>4.1 野外中継車を活用した生中継番組を制作する</p> <p>5.1 技術スタッフを指導し、野外中継技術の運用管理体制を改善する</p>	<p><b>投入</b> (日本側)</p> <p>1. 長期専門家： 1) 放送技術 2005.6.16-2007.6.15</p> <p>2. 短期専門家： 1) 番組制作 2005.9.22-2005.10.21 2) 送信技術 2006.2.21-2006.3.21 3) 番組運用制作技術 2006.11.22-2006.12.21 4) 報道番組制作 2007.3.6-2007.4.5 (予定)</p> <p>3. 研修員受入 (C/P) 本邦研修 1) 番組制作 2005.7.5-2005.9.24 2) 放送技術 2006.7.5-2006.9.9 3) 報道番組 2007.2.5-2007.3.22 (予定) 4) VTR 運用 2007.1.29-2007.2.26 (予定)</p> <p>供与機材：OB-VAN 用機材、MCR 用機材、スタジオ用機材、光端局、中継用機材等 (ブータン側)</p> <p>1. C/P 要員： 技師長以下技術スタッフ (24+24x3) 人月 番組部長 24 人月 報道部長 24 人月</p> <p>2. 施設： 機材整備に必要なケーブル・コネクタ類 日本人専門家用執務室</p> <p>3. ローカルコスト： 約 500,000Nu(約 1,350,000 円)</p>	
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## 付属資料

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### 4. 調査資料

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1	日本人専門家の派遣実績
2	研修員の受入実績
3	供与機材リスト
4	携行機材リスト
5	Assignment of Bhutan Counterparts
6	List of facilities provided by the Bhutan side
7	Expenses for the project by the Bhutan side
8	Brief background of BBS
9	Budget of BBS
10	Current state of broadcasting policy and administration
11	Role and work of Ministry of ICT in the field Broadcasting
12	Number of households that have a TV receiver and that watch TV in real time
13	Number of subscribers of CATV
14	Number of CATV operators and the charge per month
15	Range of area where broadcasting can be received
16	Number of homes and ratios in which Radio Broadcasting can be listened
17	Construction situation of optical fiber and micro wave line and it's utilization for local material collection
18	Radio/TV Programme schedule
19	Average number and contents of TV programmes concerning rural area per week
20	Average number and contents of TV programmes produced originally by BBS per week
21	Average number and contents of Live broadcast per week



#### 資料 4

##### 1 日本人専門家の派遣実績

(氏名、指導分野、派遣期間、派遣前の所属)

専門家氏名	指導分野	派遣期間
喜久村 一	放送技術	2005.6.16-2007.6.15
緒方 叡	番組制作	2005.9.22-2005.10.21
武田 信美	送信技術	2006.2.21-2006.3.21
室井 謙三	番組運用制作技術	2006.11.22-2006.12.21
秋山 茂也	情報番組制作	2007.3.6-2007.4.5

##### 2 研修員の受入実績

(氏名、役職、研修分野、研修期間、受入機関)

研修員氏名	役職	研修分野	研修期間	受入機関
Kinga Penjor	プロデューサー	番組制作	2005.7.5-2005.9.24	NHK-CTI
Panchaman Rai	TV スタジオ技術者	放送技術	2006.7.5-2006.9.9	NHK-CTI
Tharchen Sherub	TV スタジオ技術者	VTR 保守運用	2007.1.29-2007.2.16	SONY
Sonam Rinchen	リポーター	報道番組	2007.2.5-2007.3.23	NHK-CTI

3 供与機材リスト

本邦調達分

機材番号	機材名	型番	メーカー	個数	購入価格	機材別合計価格	使用用途	現在の稼働状況	備考
1	BBC-MCR/CC用機器								
1-1	デジパルM/Nミキ	AG-MX70	松下電器	1	¥800,000	¥801,700	A.V Swicter	MCRのVideo,Audio 最終controller	
	付属品:変換アダプタ	RW-P005		1	¥1,700		電源プラグ変換		
1-2	映像パッチ盤	26DV	カシ	3	¥171,000	¥216,000	Video patch panel	MCR にて Videoのパッチ盤	ラックマウント金具・キャブ付
	付属品:パッチケーブル(L0.5m, 10)	VPC005-BC		30	¥27,000		Video patch Cabl	Video patch	
	ビデオ変換アダプ	BCU-VP		30	¥18,000		BNC Cable noコネクタ	Video patch	
1-3	音声パッチ盤	32XP-H	カシ	3	¥447,000	¥621,000	Audio patch panel	MCR にて Audioのパッチ盤	ラックマウント金具付
	付属品:パッチケーブル(L0.5m, 10)	TC005		30	¥84,000		Audio patch cable	Audio patch	
	60Ω終端	L3C		30	¥90,000		Audio patch terminator	Audio patch	
1-4	パッチケーブル(L2m, 10)	TC02-X1	カシ	10	¥26,000	¥26,000	Audio patch cable	Audio patch	
1-5	パッチケーブル(L2m, 10)	TC02-X2	カシ	10	¥24,000	¥24,000	Audio patch cable	Audio patch	
1-6	デジパルカセット	DSR-45P	ソニー	2	¥1,060,000	¥1,254,000	Audio Play/Record	TNS(TV News Studio) / OB-VAN	
	付属品:19インチ設置用シェルフ			2	¥66,000		Fixing	TNS(TV News Studio) / OB-VAN	
	英文取扱説明書			4	¥128,000			R&D Room	
1-7	映像音声分配器	DA-144	イメージテック	5	¥160,000	¥185,000	V.A Distribute	MCR にて Video Audioの分配	
	付属品:ラックマウント	MK-100		5	¥25,000		Rack Mounting	MCR	
1-8	映像音声マトリックススイッチャー	SWX-1616AV	イメージテック	1	¥690,000	¥690,000	V.A Matrix Swtcher	MCR にて Video Audioの制御	
1-9	映像音声マトリックススイッチャー	SWX-55AV	イメージテック	1	¥263,000	¥263,000	V.A Matrix Swtcher	Tx Room にて Video Audioの制御	
1-10	映像音声ラインパ	LR-122	イメージテック	7	¥343,000	¥378,000	V.A Distribute	MCR にて Video Audioの分配	
	付属品:ラックマウント	MK-100		7	¥35,000		Rack Mounting		
1-11	ハム/イズ除去器(ムイター)	HE-89	アサヒ	6	¥282,000	¥282,000	Hum Cancel	Hum Cancel	
1-12	テレビ信号発生器	TG700	テクトニクス	2	¥644,000		TV信号発生器	MCR	
	(アログビデオ・アナログ)	AVG7		2	¥666,000	¥1,492,000	TV信号Audio発生器	MCR/Copy Room	
	付属品:英文ユーザーマニュアル			4	¥32,000			R&D Room	
	英文ユーザーマニュアル			6	¥150,000			R&D Room	
1-13	マルチユーリエント	MV-40F/P	朋栄	1	¥202,000	¥207,300	Video 4分割	MCR / TNS	
	付属品:ラックマウント金具			1	¥5,300				
1-14	オーディオモーター	VAS-2 II	エレクトロニクス	5	¥850,000	¥850,000	monitoring Audio signal	MCR(3): Tx Room, Copy Room	
1-15	マトリックスアダプ	MAT-1010	エレクトロニクス	1	¥1,280,000	¥1,280,000	Control Video,Audio	MCR	
1-16	ビデオフォーマーター(PAL波型変換器)	1741A	テクトニクス	2	¥2,020,000	¥2,194,000	monitoring Video signal	MCR	
	付属品:ラックマウント	WF7F05-00		2	¥134,000				
	英文ユーザーマニュアル			4	¥40,000				
2	光端局整備機材								
2-1	光端局送信機	9715DT-LD-ST	1DK	2	¥550,000	¥550,000	E/O Tx	MCR, BT Telecom	
2-2	光端局送信機	9715DT-LD3-ST	1DK	2	¥778,000	¥778,000	E/O Tx	BT Paro or BT P/ling	
2-3	光端局受信機	9715DR-L-ST	1DK	4	¥912,000	¥912,000	O/E Rx	MCR, BT Telecom	
2-4	ACアダプター	9011PS	1DK	8	¥72,000	¥72,000			



3 供与機材リスト

本邦調達分

機材番号	機材名	型番	メーカー	個数	購入価格	機材別合計価格	使用用途	現在の稼動状況	備考
2-5	映像音声分配器 (映像音声4分配器)	DA-144	イマジニクス	3	¥96,000	¥111,000	Video audio Distribution	MCR, BT Telecom	
2-6	付属品:プラグカセット	MK-100		3	¥15,000				
	音声変換器	BUC-160	イマジニクス	3	¥147,000	¥162,000	Audio signal converter	Audio signal converter	
	付属品:プラグカセット	MK-100		3	¥15,000				
2-7	音声変換器	UBC-160	イマジニクス	3	¥147,000	¥162,000	Audio signal converter	Audio signal converter	
	付属品:プラグカセット	MK-100		3	¥15,000				
2-8	映像音声インジパン-	LR-122	イマジニクス	6	¥294,000	¥324,000	Video audio signal distributor	MCR, BT Telecom	
	付属品:プラグカセット	MK-100		6	¥30,000				
2-9	オート・イモーター	VAS-2 II	エケレントホンキョー	3	¥510,000	¥510,000	monitoring Audio signal	MCR, BT Telecom, TNS	
2-10	カレヒテ・イモーター	LMD-1410	ソニー	5	¥425,000	¥685,000	TV Monitor	MCR, BT, TNS	
	付属品:プラグカセット	MB-526		5	¥110,000				
	英文取扱説明書			10	¥150,000				
2-11	ユエワ・フォームモーター (PAL 波形パケトル・モーター)	1741A	テクトニクス	5	¥5,050,000	¥5,485,000	monitoring Video signal	MCR, BT Telecom, TNS	
	付属品:プラグカセット	WF7F05-00		5	¥335,000				
	英文取扱説明書			10	¥100,000				
3	OB-VAN用装置								
3-1	カメラシステム (5カメラシステム一式)	Z-3500	日立国際電気	1	¥28,252,000	¥28,252,000	Camera	OB-Van(3), TNS(2)	
3-2	ビデオディスクレコーダー	DSR-DR1000AP	ソニー	2	¥1,700,000	¥1,778,000	Video Disc Recorder	OB-Van, MCR	
	付属品:19インチリフレクタ設置用ケーブル			2	¥66,000				
	英文取扱説明書			4	¥12,000				
3-3	カレヒテ・イモーター	LMD-9050	ソニー	2	¥960,000		TV Monitor	TNS	
	付属品:ENG KIT	VF-509		2	¥74,000	¥1,098,000			
	プラグカセット	MB-526		2	¥52,000				
	英文取扱説明書			4	¥12,000				
3-4	オート・イモーター	MD-CDI	TASCAM	2	¥174,000	¥182,000	Audio Recorder	OB-Van, TNS	
	付属品:英文取扱説明書			4	¥8,000				

現地調達分

機材番号	機材名	型番	メーカー	個数	購入価格 (¥) (1Nu=¥2.5)	購入価格 (Nu)	使用用途	現在の稼動状況	備考
1	映像・音声分配器	VN-5AR II	Kramer	3	168,750	67,500	映像・音声分配	MCR	AC220~240V/50Hz対応
	Encoder/Decoder	CODIC E-1200 (with Decoder)	Scopus	1	1,700,600	67,500	TV信号伝送	MCR, BT Telecom	AC220~240V/50Hz対応
	14"TV Monitors	TM-A14PN	日本電子	15	525,000	210,000	TV信号伝送Monitor	MCR	AC220~240V/50Hz対応
	Copy Machine(net work Printer for A3)		Konica・Minolta	1	311,625	124,650	A3 Copy Machine	R&D	AC220~240V/50Hz対応

4 携行機材リスト

機材名	型番	メーカー	個数	購入価格	使用用途	現在の稼動状況	備考
スペクトラムライザー	MS2711D	アンリツ	1	¥800,000	TV/Radio 電測定	TV/Radio信号の管理	武田専門家携行機材 SD05043
ダストレアルアンテナ	MP534A/B	アンリツ	1	¥240,000	do	do	
固定減衰器	MP721D	アンリツ	1	¥27,000	do	do	
固定減衰器	MP721B	アンリツ	1	¥27,000	do	do	
ケーブル	ELPKC02	エプソン	1	¥3,600	PJとPC接続	技術研修	武田専門家携行機材 SD05047
トランスボックス	TRB-612	エグゼレントオプティコ	3	¥85,500	TV・Radio中継機材	OB-VAN	
トランスボックス	TRB-662	エグゼレントオプティコ	3	¥85,500	TV・Radio中継機材	OB-VAN	
トランスボックス	TRB-622	エグゼレントオプティコ	3	¥108,300	TV・Radio中継機材	OB-VAN	
GHz Link(送信)	GL-2400T	7-ルイ7	1	¥178,700	TV中継機材	OB-VAN	室井専門家携行機材
GHz Link(受信)	GL-2400R	7-ルイ7	1	¥152,440	TV中継機材	OB-VAN	
ケース	AS550	7-ルイ7	2	¥42,850	do	OB-VAN	
三脚ビデオカメラ		スリック	2	¥27,090	do	OB-VAN	
テレコール	NTS-703LCM2	日本イン	4	¥348,960	do	OB-VAN	
TV音声受信機	CR-ES235M			¥29,872	do	OB-VAN	
ウォークトーカー	TH-K2	KENWOOD	4	¥82,400	do	OB-VAN	
イヤホン付カリップマイクホン	EMC-3		2	¥5,316	do	OB-VAN	
リモコンビーカーマイクホン	SMC-34(G)		2	¥7,680	do	OB-VAN	
インターフェイスケーブル	PG-4Y		1	¥3,780	do	OB-VAN	
ニッケル水素バッテリー	PB-43N		4	¥15,780	do	OB-VAN	
トランジスタ(電圧変換器)	TRP-0150		4	¥96,820	do	OB-VAN	
高声式電話機 (PWFIF:220~240V/50Hzアダプター付)	NTS-703LCM2	日本インターフォン株式会社	3	¥288,000	TV・Radio中継機材	OB-VAN	緒方専門家携行機材
ホーム7.5インチモニター (220~240V/50Hzアダプター付)	EMP-TW200H	エプソン	1	¥268,000	映像プロジェクター	技術研修等	

5. Assignment of Bhutan Counterparts  
Bhutanese Counterpart was assigned in the form of Studio Engineer (Mr. P Rai)
6. List of facilities provided by the Bhutan side
  - Provision of space for the installation of master control facilities
  - Cables and connectors required for the setting up of the facilities
  - Customs duties, internal taxes and any other charges imposed in Bhutan
7. Expenses for the project by the Bhutan side  
Approximately Nu. 500,000/-

#### 8. Brief Background of BBS

Radio Broadcasting started in Bhutan from November 1973 as Radio NYAB (started by National Youth Association of Bhutan and so the name). In 1979, the Royal Government of Bhutan recognizing the importance of the radio for development communication embraced the station under the wings of the Ministry of Communications.

In 1986 with the commissioning of a 10kw short-wave transmitter and a small broadcast studio, Radio NYAB was renamed as Bhutan Broadcasting Service (BBS). Daily broadcasting was introduced with three hours of programming that reflected the national character.

But it was only in March 1991 that BBS acquired a permanent seat and a professional look with the commissioning of a 50kw short-wave transmitter station and a studio complex-cum-office block.

2<sup>nd</sup> June 1999 was another historic date for BBS and for Bhutan as the National Television Service was launched to commemorate the Silver Jubilee reign of His Majesty the King of Bhutan. Presently, the television service is available for the capital city of Thimphu and few major towns in Bhutan. Plans and studies are going on for the expansion of the National TV Network all over the country.

In June 2000, BBS introduced FM radio service for Western Bhutan with the inauguration of the main FM station at Dobchula and one relay station at Takti in the south. Presently the FM service is covering almost all the major populated area in the country.

BBS started its nation wide coverage via satellite from February 2006 and is also planning its coverage via terrestrial networks.

#### BACKGROUND - RADIO

1973 – One hour English music transmission on Sundays, using a transmitter from a civil wireless department.

1986 – Acquired a 10 KW SW Radio Transmitter.

1990 – 100 W FM transmission in Thimphu Valley.

1991 – 50 KW SW Transmitter and a Professional Studio setup.

2001 – 1 KW FM Tx at Dopchula and Takti - FM transmission in Western Region

2002 – 1 KW FM Tx at Youtongla – expanded FM Transmission to central region  
2004 – 1 KW FM Tx at Yonphula – expanded to eastern region. Network expanded to all the Dzongkhags  
Today there are FOUR 1 KW Transmitters and 18 numbers of 5 W Transposers.

#### RADIO FREQUENCIES

88.1 MHz – Punakha, Wangdue, Thimphu and Gasa  
90 MHz – Trashigang, Mongar and Pema Gatshel  
92 MHz – Tsirang, Samtse, Lhuntse, Mongar, Pema Gatshel,  
Tashi Yangtshel, Phuntsholing, Trongsa and Zhemgang  
93 MHz – Trongsa and Bumthang  
96 MHz – Thimphu, Sarpang and Samdrup Jongkhar  
98 MHz – Chukha, Haa and Dagana

OUR SW FREQUENCY is 6035 KHz, 49 MB

#### BACKGROUND - TV

1999 – 1KW VHF Thomcast Transmitter –  
Transmission was limited to Thimphu valley only  
Channel 5.  
2004 – Live BBS TV transmission expanded to P/Ling and Paro.  
150 W DB Transmitters – Channel 5.  
2005 – Live coverage from outside the studio using OB VAN and  
a FPU.  
2006 – BBS TV transmission goes nation wide via INSAT 4A.  
2006 – Live TV Feed from outside Thimphu.

#### 9. Budget of BBS:

BBS is fully subsidized by the Royal Government of Bhutan. Its annual budget from the RGoB comes as follows:

Recurrent Budget	: Nu. 33.43 million
Capital Budget	: Nu. 53.84 million

## INFORMATION AND MEDIA POLICY of the Royal Government of Bhutan

Information and media play a central role in development in a knowledge based society. Because of its diverse and pervasive impact, information and media are integral to socio-cultural change, shaping and transforming values, lifestyles, national economies as well as socio-political systems.

In Bhutan's rapidly changing socio-economic, cultural and political scenario, information and media are already vital forces that touch all national priorities. Information and media are recognized as the most appropriate tools to overcome the challenges posed by a rugged geography, to reach scattered communities in all corners of the country, and to help the nation deal with a globalized world in a new century.

The Royal Government of Bhutan recognizes the positive role that information and media can play in promoting good governance through efficiency, accountability and transparency towards attainment of the overall goals of Gross National Happiness.

The Royal Government is committed to the following tenets:

- Upholding the ***universal rights of citizens to information, freedom of opinion and expression, and independence of the media*** which has the mandate "*to connect, inform, educate and entertain*".
- Ensuring the freedom of the media to facilitate ***increasing participation of the public and private sector*** in the field of information and media.
- Establishing a ***vibrant, responsive and responsible media*** in the kingdom ***that will respect and uphold national interests*** and make a positive and meaningful contribution to nation building.
- Encouraging and supporting an ***increased level of information sharing*** within the Government, between the Government and the people and among the people themselves.
- Creating a ***well-informed society*** by providing timely, accurate and comprehensive information and data on all issues affecting people's lives.

### **Background:**

With Bhutan on the information highway the Royal Government is seeking a clear vision, drawing up a comprehensive work plan, and putting the right institutions in place to develop the information, communication, and media sector.

This paper defines DoIM's mission and function, based on the Royal Government's media vision and policy, within an effective institutional, legal and administrative framework. It outlines DoIM's critical role in directing the growth of the traditional and emerging new media.

In the broad scheme of development, the RGOB envisions that the information and media sector will play a vital role in taking Bhutan into the future. Poised at the crossroads of an exciting era in the development of the Bhutanese media, the Ministry of Information and Communications has already taken a number of initiatives to ensure the healthy growth of the Bhutanese media.

This paper looks at the strategies that need to be adopted by the Ministry to shape this broad vision into a coherent and practical plan of action. The institutional plan was drawn up in close consultation within the Ministry and numerous stakeholders both public and private.

The department being in an early stage of development, an in-depth background has been provided to form the basis of the proposed vision and mission statements.

### **Towards an Information Society:**

The term Information Society refers to communities that have ready access to information, leading to sustainable and equitable opportunities for growth and progress.

In an information society, there is free flow of two-way communication between governments and their people, and among the people themselves. In such a society, everyone is informed of policies, developments, current affairs, especially those that affect them directly; and everyone has the ability to make his or her voice heard. Hence, everyone has a say in shaping socio-economic plans and strategies of national relevance.

Media is a vital tool in an information society. In such a society, communication has to reach the masses. It has to reach the grass roots – to villages and *Gewogs* and to the remote nomadic communities in the north. Communities' needs and aspirations, culture and values, indigenous wisdom and experience have to filter up to policy makers and other stakeholders in order for communication to truly improve people's quality of life.

The most cost-effective way of achieving such widespread communication is through the mass media, especially the radio.

Media in Bhutan needs to focus on public service obligations and move away from the tendency towards advertising. It needs to focus on rural communities, marginalized groups, and those who are not within easy reach. The ultimate aim is to focus on what is termed “media pluralism” where media reflects the needs of all members of Bhutanese society, especially those whose voices have not been heard till now. (youth, women, elderly etc)

The government acknowledges that the challenge for Bhutan today is how to take advantage of globalization and the information revolution and yet preserve and promote essential elements of Bhutan’s culture and traditions in order to enhance our spiritual well-being. DoIM can help to create greater awareness of the information society, and what can be done to help the media to promote the concept and goals of the information society.

**Department's Mission Plan and Mandate:**

The Department's mission and mandate are based on the Royal Government's Vision for the information and media sector: *Towards a connected<sup>1</sup>, and knowledge-based society.*

**Mission:**

To create a vibrant and informed society to realize Bhutan’s national policies, priorities and the overall goal of Gross National Happiness.

**Mandate:**

The Department will promote and support the development of a sensitive and professional information and media sector.

It will provide leadership, co-ordination, and advice to the information and media sector (both public and private undertakings).

**Objectives:**

1. to build a vibrant and creative infocom-media sector that is responsive to Bhutan’s needs

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<sup>1</sup> By connected, we refer not just to IT connectivity but to connecting people from all corners of Bhutan and sections of society with access to information and media.

2. to promote good governance and foster socio-economic development; and
3. to promote efforts to reach the un-reached for a connected and knowledge-based society

### **Strategies:**

#### **1. Promote and support the development of quality content**

Government support - in terms of infrastructure, funding, and professional expertise - is needed given the rising expectations and the limited resources of a young information and media sector and an increasingly educated public. The Government must also play a lead role in supporting the development and promotion of culture, particularly contemporary culture, through mass media and the arts. The aim is to promote the creation of dynamic, diverse and locally relevant content. The support will help boost the creative industry so that local producers of content - whether it is web content, broadcast or print, music and film, or advertising - are able to achieve quality in production.

#### **2. To use the information and media sector to promote Policies and Goals to achieve national aspirations**

People today need to understand the government's policies and priorities to make relevant and informed decisions. The government must make policies known through wide-spread dissemination in the media. The government's goals must be clearly understood. The information and media sector can enhance the transparency of the government's actions so that the public and private sector are more aware of and involved in nation building.

The government must provide policy directives to help develop the information and media sector. Government support is necessary to build a true information society in Bhutan to fulfill national aspirations. The challenge is to create an effective policy environment to nurture an independent and diverse media and to promote skills that enable people to disseminate and access information. It can simultaneously, encourage people to provide feedback and comments to help refine national policies and strategies.

#### **3. Promote public access (accurate, timely, and accessible information) to reach all sections of society**

Promoting access, especially for remote communities, has become a priority in today's changing political and socio-economic environment. It will be difficult for media, especially private media, to reach rural Bhutan without government



support.

Efforts must be made to ensure that information and media reaches all sections of Bhutanese society, and that their views are also reflected in national coverage. Access to information is essential in the creation of a knowledge-based society. The Government will assist in creating a more accessible environment to be built upon by media organizations and the private sector.

#### **4. Build Media Relations so that the information and media sector plays a healthy role in nation-building**

As the information and media sector plays an increasingly important role in all aspects of development, and in building a knowledge-based society, it is critical that the government provides a healthy direction to the information and media sector. The Government must also sensitize its agencies on the role of media and encourage government organizations to take advantage of media to further its goals. The Department will also encourage the creation of an open, free sharing culture to boost efficiency and accountability. To achieve this, the government must gain the trust and confidence of information and media professionals so that they are sensitive to Bhutan's interests and priorities.

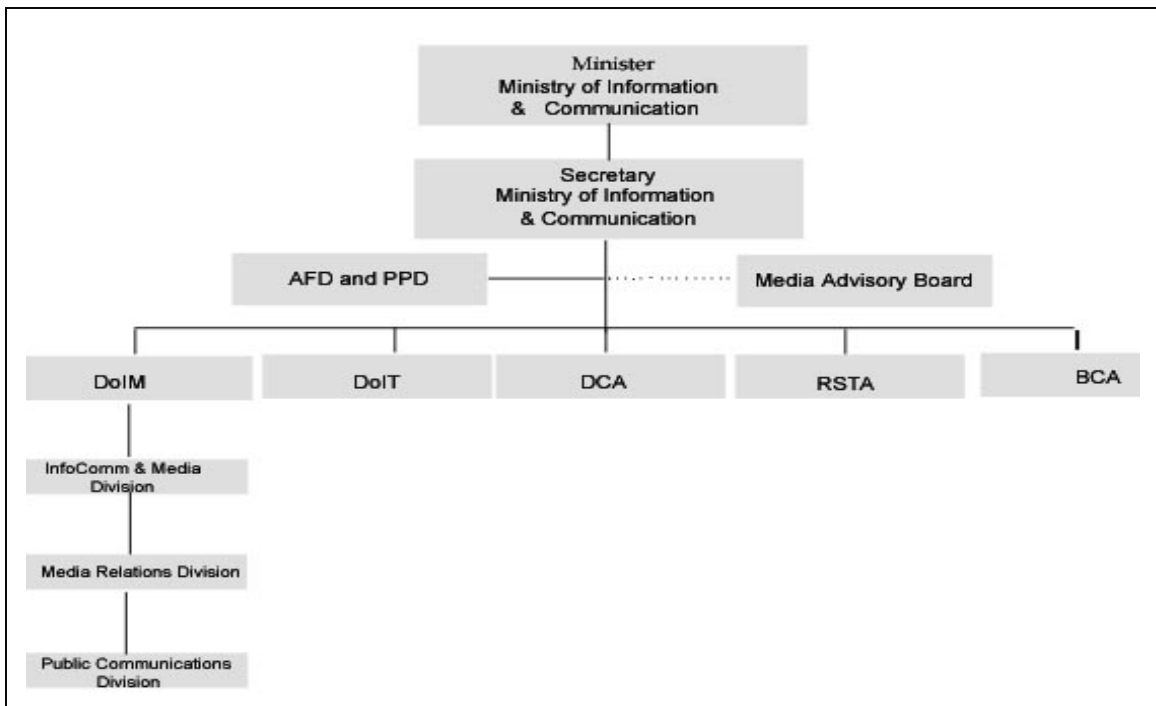
##### **Proposed structure:**

The Ministry of Information and Communications has two key agencies dealing with information and media: the Department of Information and the Media (DoIM) and the Department of Information Technology (DIT).

The overall function of the Department is to promote the development of the information/ media sector through policy and development plans. It shall also facilitate and promote the establishment of an open information-sharing environment as the basis for a knowledge-based society, and enable the government to build and strengthen media relations as a tool for enhancing national goals and priorities.

It is proposed that the Department establishes three divisions to fulfill the responsibilities described:

1. Information-Communications and Media Development Division (IMDD)
2. Media Relations Division (MRD) and
3. Public Communications Division (PCD)



As an agency dealing specifically with information, communications and media, the department is expected to be the hub of all information, communication and media development activities. The functions of the divisions are as follows:

### **Info-comm and Media Development Division (IMDD)**

- Undertake research to monitor the evolution of an information and knowledge-based society. Research, analysis and the findings will provide the foundation to initiate the drafting of policy and legislation, prepare policy briefings for the Ministry on the information and media sector, and update policy and legislation when required.
- Identify priority areas for development and prepare action plans and where necessary prepare project proposals for seeking funding support from the government or international donor agencies.
- Spearhead initiatives to encourage investment and innovations in the information /media industry both in private and public sector and prepare operating guidelines for industry and provide advice and assistance to develop relevant and quality contents.
- Prepare five year development plans for the department, monitor and review the progress and prepare periodic review/progress reports.

- Function as a secretariat to the ICT and Media Advisory Committee or Board and submit relevant issues for Ministry's deliberations and recommendations.

### **Media Relations Division (MRD)**

- Establish and maintain contacts with regional and international information and media organizations to develop and promote relationships for learning and cooperation.
- Monitor media coverage on Bhutan, reproduce and distribute news clippings to relevant organizations and where necessary prepare responses on behalf of the Government in consultation with the relevant government agencies.
- Facilitate/arrange participation by Bhutanese media personnel in various media events within and outside the country.
- Process, coordinate and facilitate the visits of foreign journalists and media personnel to Bhutan. As appropriate, the Media Relations Division shall consult the Ministry of Foreign Affairs.
- Ensure/arrange media coverage on national events and international meetings in Bhutan.
- Coordinate and implement programs for training, study visits, seminars, and workshops for media personnel to enable them to produce relevant and quality contents.

### **Public Communications Division (PCD)**

- Communicate RGOB's policies, priorities and goals relating to information and media sector as well as the plans, programs and activities of the Department through publication of information booklets, newsletters, website and other medium.
- Develop a model for sharing of information among government agencies and between the government agencies and the public on a two-way basis to ensure that the public service obligations are met in an effective and transparent manner.

- Encourage/assist other government agencies in creating relevant contents and making them accessible in the public domain.
- Build up and maintain a comprehensive print and audio-visual archive.
- Produce and/or facilitate production of audio visual programs to promote or create awareness about issues of relevance to society.

*(The functions of Department will evolve and grow in the years to come as information and media play increasing role and new issues and challenges emerge).*

### **Infrastructure:**

The Department shall establish:

- A library and reading room with access to the Internet and digital archives of its picture and research files. ( Note: The draft media legislation and regulations need to specify legal deposits on local publications for the department.)
- A media centre with TV/ video player, and computer and worktable for monitoring media and for small in-house print productions (eg. newsletter).

**Budget:** Budget provisions will be required for the Department to acquire and commission reports and programs on national events, and to produce publications.

### **Equipment:**

- LCD projector and laptop
- Projector Screen
- Library computers/ chairs and reading tables/ shelves/ filing cabinets
- Colour copier – to produce in house newsletter
- Digital camera and video camera for photographs and websites
- Leased line internet service
- TV set / video recorder
- Software for digitalizing and storing pictures and reports

### **16. Staffing requirements:**

**Table 2: Staffing**

Post	Staff strength (before 2006)	Remarks
Department		

Director	1	
Personal Assistant	1	
Messenger	1	
Sub-total	3	
<b>Info-com and Media Development Division</b>		
Policy and program officer	1 (communications background)	
Research officer	1 (sociologist /research background)	
Research associate/ statistics officer	1 (statistician/ research background)	
<b>Sub-total</b>	<b>3</b>	
<b>Media Relations Division</b>		
Media relations officer	1 ( media or PR background )	
Information officer	2 (communications or media background )	
Sub-total	<b>3</b>	
<b>Public Communications Division</b>		
Communications officer	1 (communications backgrd.)	
Production officer	1 ( print or media background)	
Librarian	1	
<b>Sub-total</b>	<b>3</b>	
<b>Admin and Support staff</b>		
Data manager/webmaster	1	
Office Secretary	1	
Driver	1	
Cleaner	1	
Sub-total	<b>4</b>	
<b>Department Total</b>	<b>16</b>	

Note: Recruits for the program posts will be graduates with specialized degrees or persons with class 12 qualifications with the relevant work experience.

## **Training**

Various short term, and longer-term masters or diploma level trainings are being recommended in public administration, policy and planning, mass communications, media and other specialized areas covering communications.

**Ministry of Information and Communications**  
**Royal Government of Bhutan, Thimphu**

**Information and Communications Technology**  
**(ICT) Policy for Bhutan**

*A White Paper*

**October 2003**

# Information and Communications Technology (ICT) Policy for Bhutan – A White Paper

## 1 Introduction

The explosive development of information and communications technologies (ICT)<sup>1</sup> and their applications are changing the way people live, learn, work and interact. Enhanced access to information and knowledge is rapidly becoming a potent tool for individuals and communities everywhere in their quest for new opportunities, for dignity and for a better life. Clearly underscoring the paramount role placed on and desired of the ICT sector, the Royal Government of Bhutan has established the Ministry of Information and Communications.

However, Bhutan faces a number of challenges in harnessing the benefits of ICT, including difficult terrain, dispersed population and limited private sector activities. A coordinated policy approach is the first step to ensuring that Bhutan does not miss out on the opportunities of the information revolution.

Notwithstanding the achievements we have made and the many ICT activities carried out in the last couple of years, with the new Ministry in place, it is timely to take stock of what we have accomplished as well as look forward, and to effect a clear, focused and a collective policy alignment. The Ministry has taken this opportunity to create this White Paper<sup>2</sup>, which states the Royal Government's ICT Vision, Strategic Components, and Future Direction, aiming to guide the ICT sector in the long run.

## 2 ICT Vision

**With people at the center of development, Bhutan will harness the benefits of ICT, both as an enabler and as an industry, to realize the Millennium Development Goals and towards enhancing Gross National Happiness.**

## 3 Strategic Components

Based on the Vision, the Royal Government of Bhutan is committed to work towards:

### 3.1 Infrastructure

Deploying a reliable, sustainable, appropriate and affordable ICT infrastructure to achieve universal access and global connectivity through liberalization and co-ordination between infrastructure providers.

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<sup>1</sup> ICT includes Information & Communications Technologies and Media.

<sup>2</sup> The “ICT Policy for Bhutan – A White Paper” is produced by the ICT Working Group under the patronage of His Excellency, Lyonpo Leki Dorji, Minister for Information & Communications. Feedback received, on the widely circulated draft ICT White Paper, from stakeholders, and subsequent inclusive consultative processes served as valuable inputs to producing this paper.

### **3.2 Human Capacity**

Ensuring institutions and curricula to provide ICT skills at all levels, from technical, professional and entrepreneurial skills for industry and government to basic ICT literacy for all.

### **3.3 Policy**

Creating a legislative and regulatory framework, which is adaptable, comprehensive, transparent, inclusive and forward-looking, and building effective institutional capacity to implement it.

### **3.4 Enterprise**

Creating an enabling business environment that helps to generate employment, attracts local and foreign investments, enhances access to local and global markets, improves business processes, stimulates domestic demand and fosters research and development.

### **3.5 Content and Applications**

Promoting widespread creation of content and applications that are accessible, relevant, appropriate and useful, in particular, the development of applications for public services.

## **4 Future Direction**

Recognizing that ICT can have an immense impact on virtually all aspects of our lives, the Royal Government of Bhutan owns this Vision and declares a strong commitment to developing and implementing a National ICT Strategy and Action Plan, based on the ICT Vision.

The Strategy and Action Plan shall build on all current ICT activities, identify linkages and complementarities between development approaches, as well as identify new areas of intervention. The ICT Vision, Strategy and Action Plan shall also secure the participation and commitment of all stakeholders.

The White Paper is the basis for an inclusive and consultative process for formulating a new strategic framework for ICT in Bhutan.



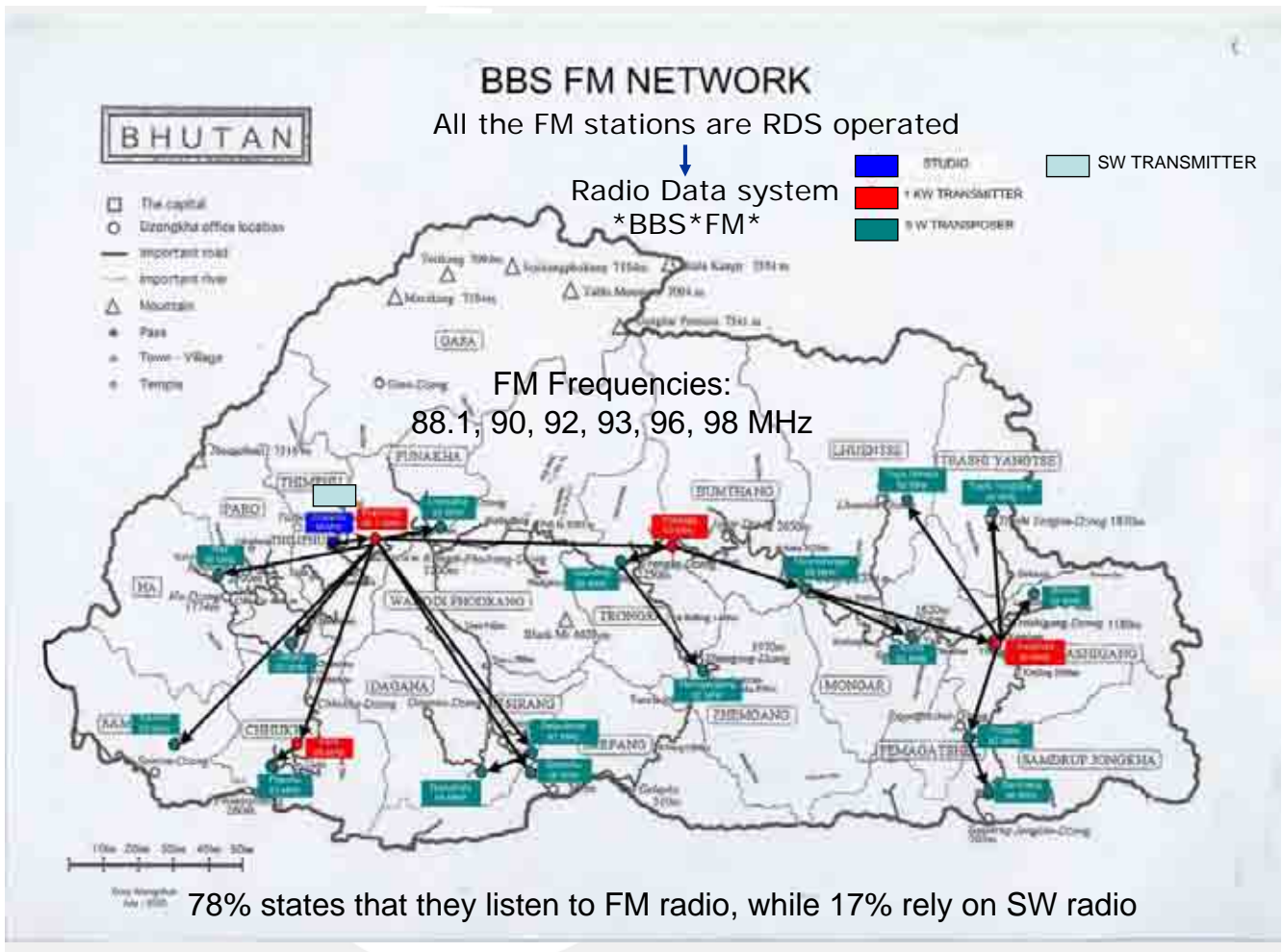
12. Number of households that have a TV receiver and that watch TV in real time:  
35,420 (National Housing and Population Cense 2005). 76% of the Bhutanese population without TV sets intends to buy TV sets once BBS TV goes nation wide.
13. Number of subscribers of CATV :  
17,715 (2006)
14. Number of CATV operators and the charges per month:  
43 operators and charges Nu. 300 per month
15. Range of area where broadcasting can be received:  
TV – almost 35 countries through INSAT 4A (coverage map attached)
16. Number of homes and ratios in which Radio Broadcasting can be listened:  
83, 130 households has a radio set – 78% of the population listens to FM radio, while 17% listens to SW radio.

# TECHNICAL DEPARTMENT

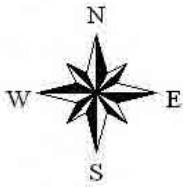
## TRANSMISSION UNIT (Technical Department)

**Objective: -**

To Provide Quality RADIO AND TV Service to every Bhutanese home.



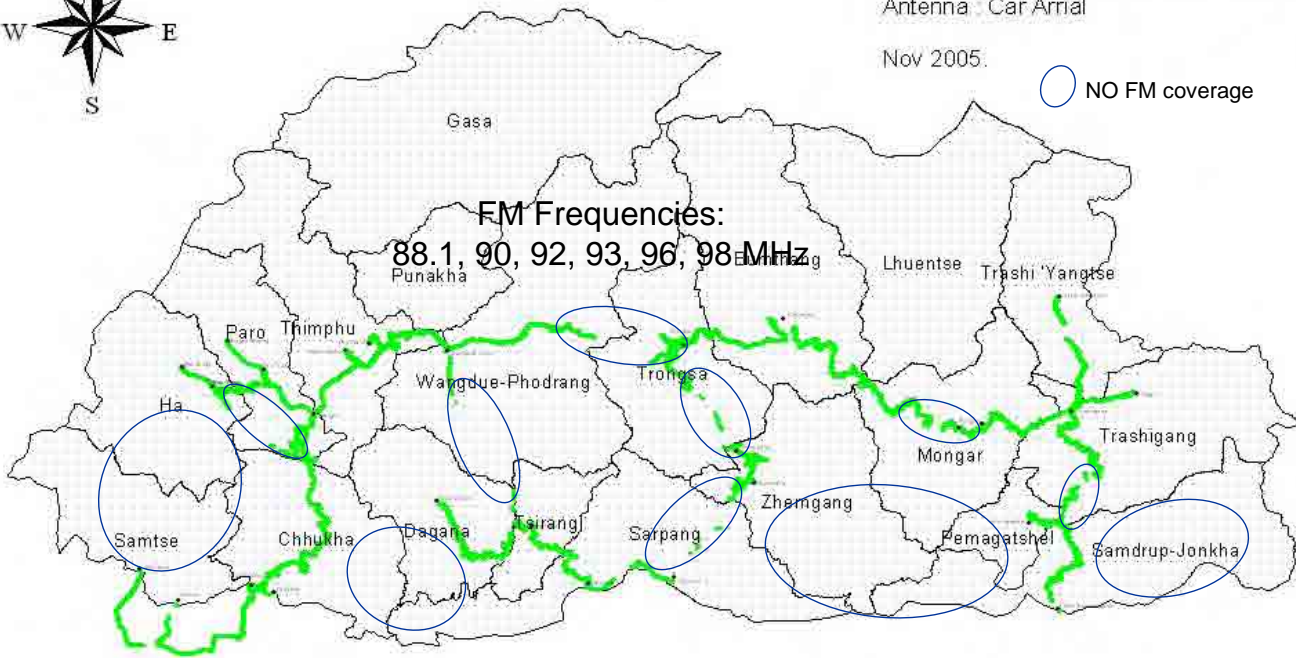
# BBS FM COVERAGE



RF Field Strength : > 20 dBuV  
 Measuring Equipment : AZ TEC Receive  
 Antenna : Car Arrial

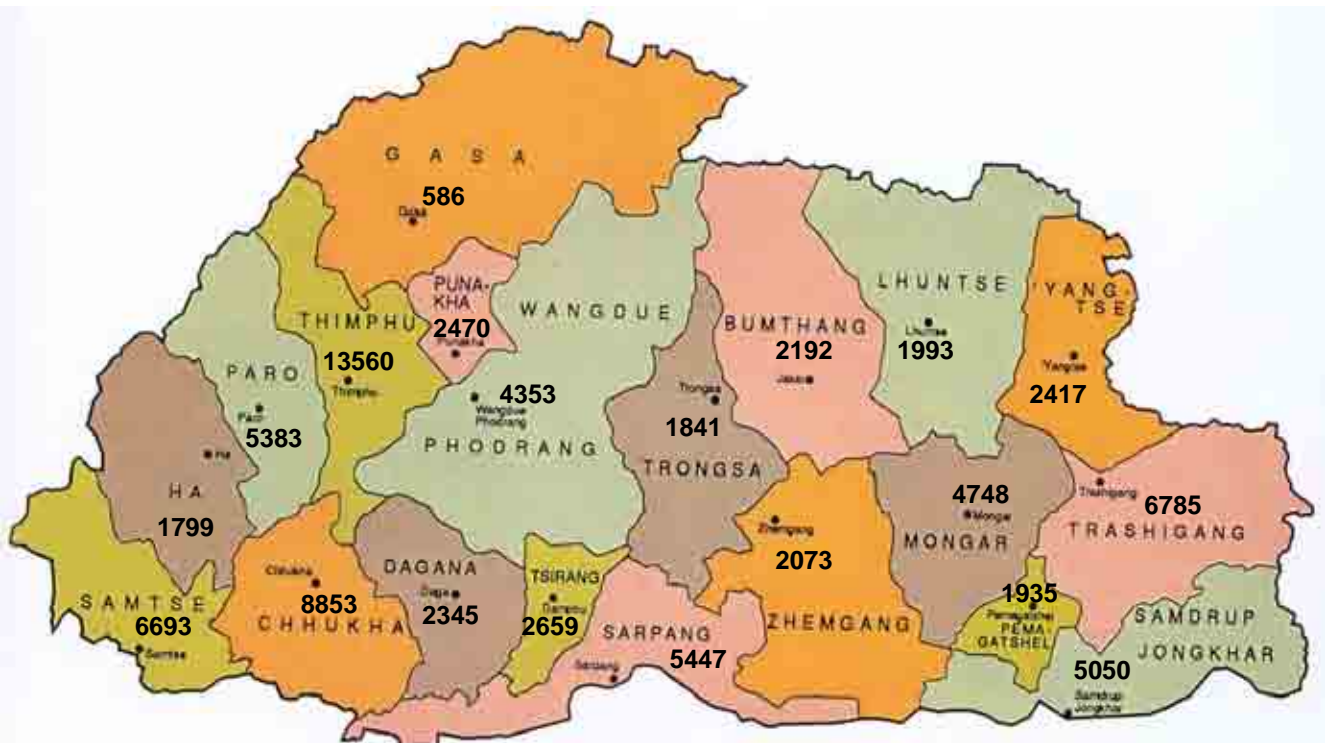
Nov 2005.

NO FM coverage



Almost 80% of the total road length is covered by BBS FM  
 (Almost all Cars are fitted with Radio/Tape player)

## Number of Households having Radio sets



83,183 Households has Radio sets (NCHP survey 2005)

# BBS Satellite TV Down link parameters

INSAT 4A @ 83 Degrees East

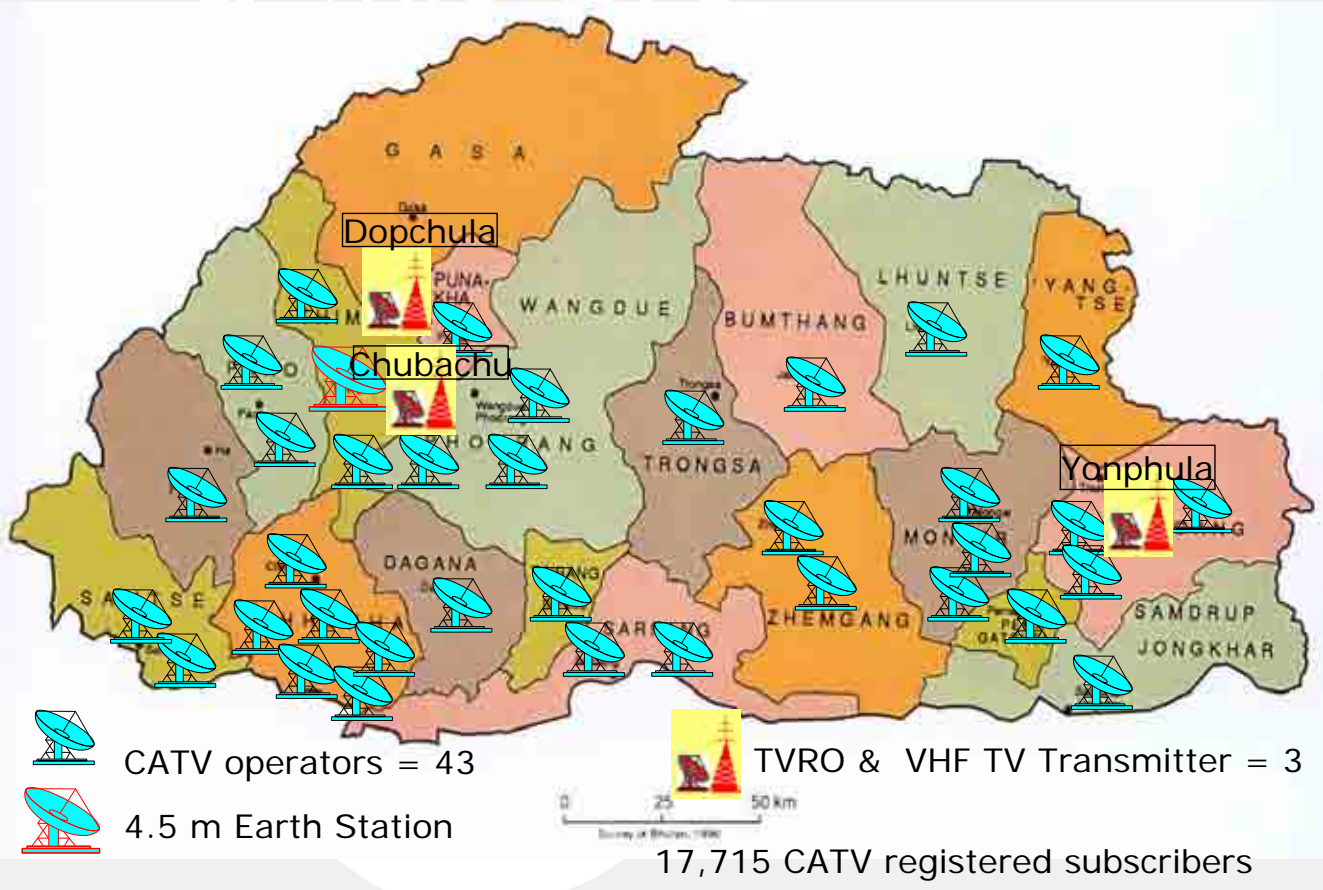
Frequency: 4099 MHz

Polarization: Horizontal

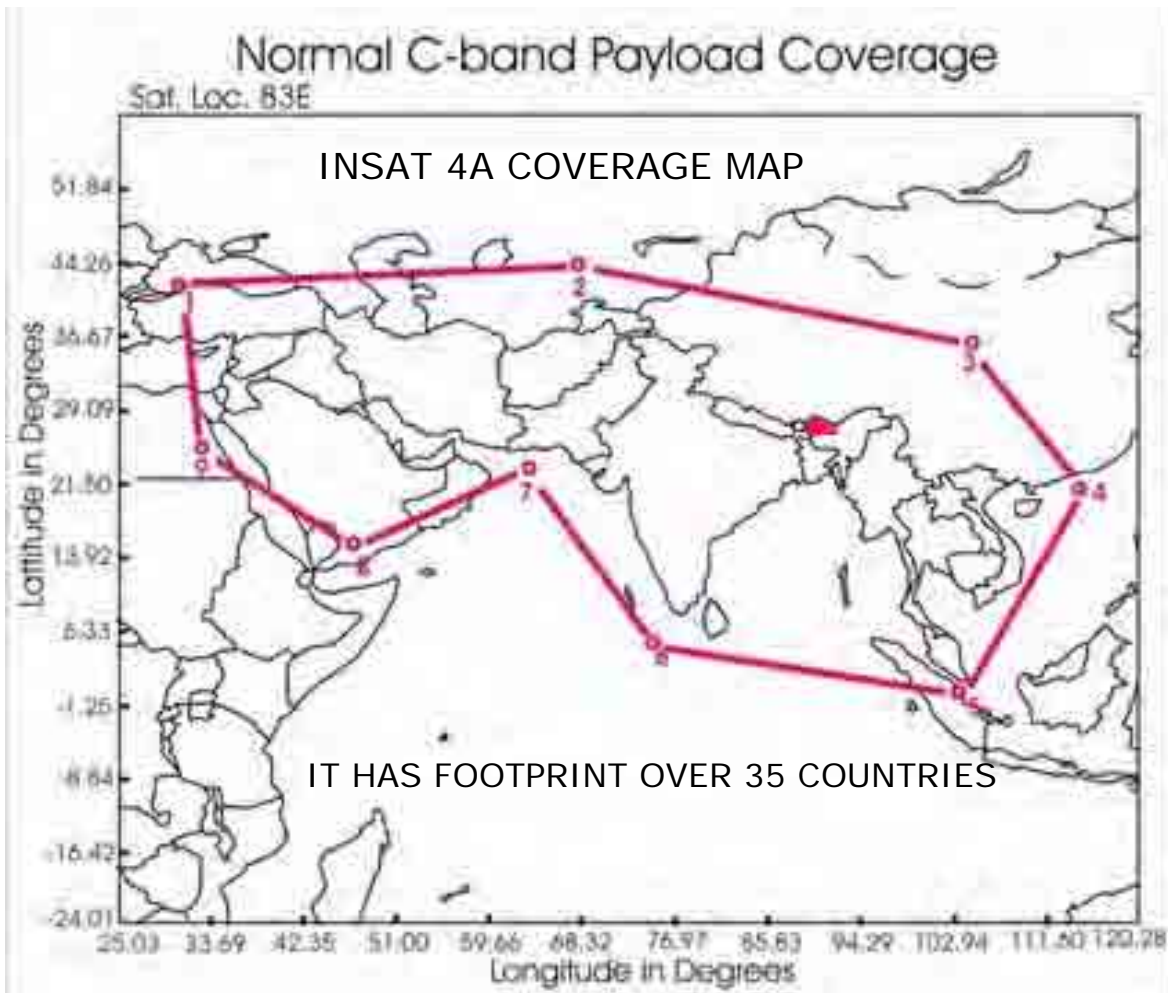
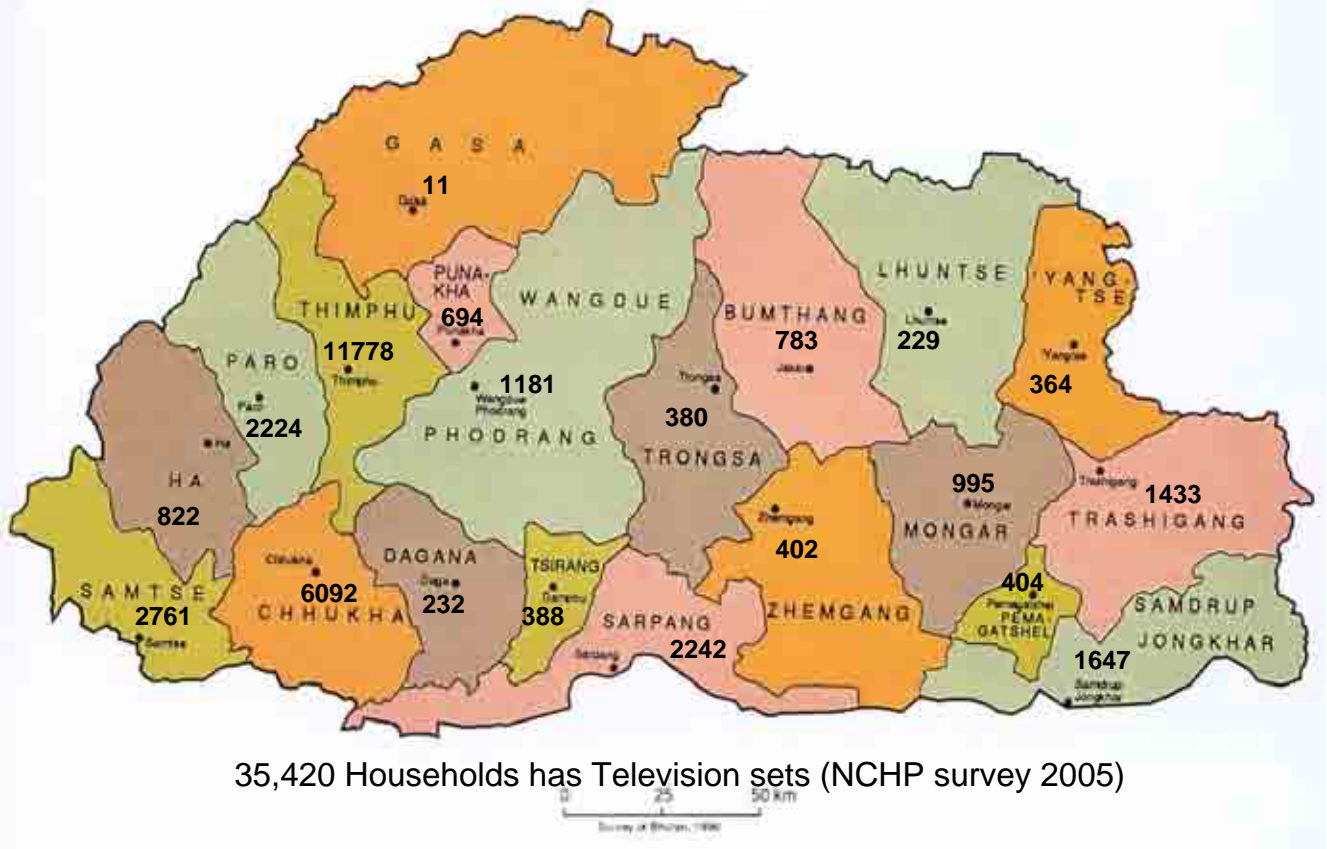
Symbol Rate: 3.5 Mbaud

FEC = 3/4

## BBS TV COVERAGE MAP



Number of Households having Television sets





18. Radio/TV programme schedule:

There are 5 slots per day (1 slot = 30 minutes), which counts to 35 slots in a week.  
(weekly updated Radio and TV schedules are given in our website [www.bbs.com.bt](http://www.bbs.com.bt))

**RADIO PROGRAM SCHEDULE**

**MORNING**

Language	Time	Programmes
<b>Dzongkha</b>	0600-0700	Morning prayers/discourse
	0700-0730	News- National and International
	0730-0740	Public service announcements/notifications and other informations
	0740-0800	Good Governance (Mons), Social issues(Tues), Culture (Wed), Regional Program (Thurs), Good Governance(Fri), Request show(Sat), Request show(Sun)
	0800-0830	News, Weather and Announcements
	0830-0840	Public service announcements/notifications and other informations
	0840-0900	Social issues (Mons), Development (Tues), Good Governance (Wed), Good Governance(Thurs), Youth(Fri), Health program (Sat), Education program (Sun)
<b>Sharchhop</b>	0900 - 0930	News bulletin
	0930 - 0940	Weather and public service announcements
	0940 - 1000	Good Governance (Mons), Social program (Tues), Women's program (Wed), Regional program (Thurs), Good governance(Fri), Live request show (Sat), Youth program(Sun)
<b>Lhotsam</b>	1000-1030	News
	1030-1040	Announcements and weather
	1040-1100	Good governance (Mons) Development program (Tues) Social issues program (Weds) Good governance (Thurs) Sports (Fri) Request shows (Sats) Request shows (Suns)
<b>English</b>	1100-1130	News bulletin
	1130-1140	Weather forecast and Announcements
	1140-1200	Good governance (Mons) Health (Tues) Current affairs (Wed) Regional (Thurs) Development program (Fri) Request show (Sat) Request (Sat)
	1200-1400	transmission break. On Saturdays and Sundays- Live call in request show- Dzongkha only.

### AFTERNOON SERVICE

Language	Time	Programmes
Dzongkha	1400-1430	News
	1430-1440	Weather report, Announcements and Currency Exchange Rates
	1430-1500	Music Show- Zhungdra (Mons) Music Show- Boedra (Tues) Live call in show- Rigsar (Weds) Music show- Rigsar (Thurs) Request letters (Fri) Live call in show (sat) Live call in show (Sun)
English	1500-1530	News
	1530-1540	Announcements and weather report, currency exchange rates
	1540-1600	Youth- Pathways (Mons) Topical- Local town (Tues) Call in show (Weds) UN radio programme (Thurs) Bhutan This Week (Fri) Internet of radio (Sat) Request show (Sun)
Sharchhop	1600 - 1630	News bulletin
	1630-1640	Weather and Announcements
	1640-1700	Children (Mon) Good Governance (Tues) Health and Education (Weds) Religious program (Thurs) Bhutan This Week (Fri) Request songs (Sat) Live call in show (Sun)
Lhotsham	1700-1730	News
	1730-1740	Public service announcements, weather report, and other public information
	1740-1800	Health and education (Mons) Topical (Tues) Good governance (Weds) Local talents (Thurs) Bhutan This Week (Fri) Request show (Sats) Request show (Suns)

### EVENING SERVICE

Dzongkha	News and public service announcements - <b>1800-1840</b>
	<b>From 1840-1900:</b> Youth (Mons) Health and education (Tues) Request songs (Weds) Surroundings (Thurs) Bhutan This Week (Fri) Request songs (Sats) Sports (Suns)
	<b>News and public service announcements - 1900-1940</b> <b>From 1940-2000:</b> Current Affairs (Mons) Bureau program (Tues) Call in show (Weds) Current Affairs (Thurs) Request songs (Fri) Local governance (Sats) Request songs (Suns)



<b>English</b>	<b>News and public service announcements -2000-2040</b>
	<b>From 2040-2100:</b> Current Affairs (Mons) Bureau program (Tues) Call in show (Weds) Current Affairs (Thurs) Buddhism/Drama (Fri) Request songs (Sats) Request songs (Suns)

出典：BBS 作成

## TELEVISION PROGRAM SCHEDULE, January 2007

Updated weekly

Month and Day	Time	Language	Programmes
<b>SATURDAY, 6th January</b>	1800 - 1803	Dzongkha	National Anthem, presentation of tonight's News Sig.
	1803 - 1810	Dzongkha	<b>News in Dzongkha (National)</b>
	1810 - 1811		News Break - Program trailers, social messages
	1811 - 1815	Dzongkha	<b>News in Dzongkha (International)</b>
	1815 - 1820	Dzongkha	Weather Forecast
	1820 - 1830	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1830 - 1850	Dzongkha	<b>ICT</b>
	1850 - 1900	Dzongkha	Public announcements/commercials
	1900 - 1910	Dzongkha	<b>News in Dzongkha (National)</b>
	1910 - 1911	Dzongkha	News Break - Program trailers, social messages
	1911 - 1915	Dzongkha	<b>News in Dzongkha (International)</b>
	1915 - 1920	Dzongkha	Weather Forecast
	1920 - 1930	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1930 - 1950	Dzongkha	<b>Press reports</b>
	1950 - 1955	Dzongkha	Public announcements/commercials
	2000 - 2010	English	<b>News in English (National)</b>
	2010 - 2011	English	News Break - Program trailers, social messages
	2011 - 2015	English	<b>News in English (International)</b>
	2015 - 2020	English	Weather Forecast & Currency Exchange Rates
	2020 - 2030	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2030 - 2050	English	<b>Zhungchong layrim</b>
	2050 - 2100		Music Video
	2100 - 2110	Dzongkha	<b>News in Dzongkha (National)</b>
	2110 - 2111		News Break - Program trailers, social messages
	2111 - 2115	Dzongkha	<b>News in Dzongkha (International)</b>
	2115 - 2120	Dzongkha	Weather Forecast
	2120 - 2130	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2130 - 2150	Dzongkha	<b>Trowa</b>
	2150 - 2159	Dzongkha	Public announcements/commercials
	2200-2210	English	<b>News in English(National)</b>
	2210 - 2211	English	News Break - Program trailers, social messages
	2211 - 2215	English	<b>News in English (International)</b>
2215 - 2220	English	Weather Forecast & Currency Exchange Rates	

	2220 - 2230	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2230 - 2250	English	<b>News roundup</b>
	2250 - 2258		Public announcements/commercials
	2258-2300		<b>Prayers...</b> Close Transmission
<b>SUNDAY, 7th January</b>	1800 - 1803	Dzongkha	National Anthem, presentation of tonight's News Sig.
	1803 - 1810	Dzongkha	<b>News in Dzongkha (National)</b>
	1810 - 1811		News Break - Program trailers, social messages
	1811 - 1815	Dzongkha	<b>News in Dzongkha (International)</b>
	1815 - 1820	Dzongkha	Weather Forecast
	1820 - 1830	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1830 - 1850	Dzongkha	<b>Bureau program</b>
	1850 - 1900	Dzongkha	Music Video
	1900 - 1910	Dzongkha	<b>News in Dzongkha (National)</b>
	1910 - 1911	Dzongkha	News Break - Program trailers, social messages
	1911 - 1915	Dzongkha	<b>News in Dzongkha (International)</b>
	1915 - 1920	Dzongkha	Weather Forecast
	1920 - 1930	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1930 - 1950	Dzongkha	<b>Zhungchong</b>
	1950 - 1955	Dzongkha	Music Video
	2000 - 2010	English	<b>News in English (National)</b>
	2010 - 2011	English	News Break - Program trailers, social messages
	2011 - 2015	English	<b>News in English (International)</b>
	2015 - 2020	English	Weather Forecast & Currency Exchange Rates
	2020 - 2030	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2030 - 2050	English	<b>Medey</b>
	2050 - 2100		Music Video
	2100 - 2110	Dzongkha	<b>News in Dzongkha (National)</b>
	2110 - 2111		News Break - Program trailers, social messages
	2111 - 2115	Dzongkha	<b>News in Dzongkha (International)</b>
	2115 - 2120	Dzongkha	Weather Forecast
	2120 - 2130	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2130 - 2150	Dzongkha	<b>Documentary</b>
	2150 - 2159	Dzongkha	Music Video
	2200-2210	English	<b>News in English(National)</b>
	2210 - 2211	English	News Break - Program trailers, social messages
	2211 - 2215	English	<b>News in English (International)</b>
2215 - 2220	English	Weather Forecast & Currency Exchange Rates	
2220 - 2230	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.	

	2230 - 2250	English	<b>Talk show</b>
	2250 - 2258		Public announcements/commercials
	2258-2300		<b>Prayers...</b> Close Transmission
<b>MONDAY, 8th January</b>	1800 - 1803	Dzongkha	National Anthem, presentation of tonight's News Sig.
	1803 - 1810	Dzongkha	<b>News in Dzongkha (National)</b>
	1810 - 1811		News Break - Program trailers, social messages
	1811 - 1815	Dzongkha	<b>News in Dzongkha (International)</b>
	1815 - 1820	Dzongkha	Weather Forecast
	1820 - 1830	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1830 - 1850	Dzongkha	<b>Medey</b>
	1850 - 1900	Dzongkha	Music Video
	1900 - 1910	Dzongkha	<b>News in Dzongkha (National)</b>
	1910 - 1911	Dzongkha	News Break - Program trailers, social messages
	1911 - 1915	Dzongkha	<b>News in Dzongkha (International)</b>
	1915 - 1920	Dzongkha	Weather Forecast
	1920 - 1930	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1930 - 1950	Dzongkha	<b>Medey</b>
	1950 - 1955	Dzongkha	Music Video
	2000 - 2010	English	<b>News in English (National)</b>
	2010 - 2011	English	News Break - Program trailers, social messages
	2011 - 2015	English	<b>News in English (International)</b>
	2015 - 2020	English	Weather Forecast & Currency Exchange Rates
	2020 - 2030	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2030 - 2050	English	<b>Medey</b>
	2050 - 2100		Music Video
	2100 - 2110	Dzongkha	<b>News in Dzongkha (National)</b>
	2110 - 2111		News Break - Program trailers, social messages
	2111 - 2115	Dzongkha	<b>News in Dzongkha (International)</b>
	2115 - 2120	Dzongkha	Weather Forecast
	2120 - 2130	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2130 - 2150	Dzongkha	<b>Bureau program</b>
	2150 - 2159	Dzongkha	Music Video
	2200-2210	English	<b>News in English(National)</b>
	2210 - 2211	English	News Break - Program trailers, social messages
	2211 - 2215	English	<b>News in English (International)</b>
	2215 - 2220	English	Weather Forecast & Currency Exchange Rates
2220 - 2230	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.	
2230 - 2250	English	<b>Japanese Serial - OSHIN</b>	
2250 - 2258		Public announcements/commercials	

	2258-2300		<b>Prayers...</b> Close Transmission
<b>TUESDAY, 9th January</b>	1800 - 1803	Dzongkha	National Anthem, presentation of tonight's News Sig.
	1803 - 1810	Dzongkha	<b>News in Dzongkha (National)</b>
	1810 - 1811		News Break - Program trailers, social messages
	1811 - 1815	Dzongkha	<b>News in Dzongkha (International)</b>
	1815 - 1820	Dzongkha	Weather Forecast
	1820 - 1830	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1830 - 1850	Dzongkha	<b>Tserig</b>
	1850 - 1900	Dzongkha	Music Video
	1900 - 1910	Dzongkha	<b>News in Dzongkha (National)</b>
	1910 - 1911	Dzongkha	News Break - Program trailers, social messages
	1911 - 1915	Dzongkha	<b>News in Dzongkha (International)</b>
	1915 - 1920	Dzongkha	Weather Forecast
	1920 - 1930	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1930 - 1950	Dzongkha	<b>Zhungchong</b>
	1950 - 1955	Dzongkha	Music Video
	2000 - 2010	English	<b>News in English (National)</b>
	2010 - 2011	English	News Break - Program trailers, social messages
	2011 - 2015	English	<b>News in English (International)</b>
	2015 - 2020	English	Weather Forecast & Currency Exchange Rates
	2020 - 2030	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2030 - 2050	English	<b>Peljor</b>
	2050 - 2100		Music Video
	2100 - 2110	Dzongkha	<b>News in Dzongkha (National)</b>
	2110 - 2111		News Break - Program trailers, social messages
	2111 - 2115	Dzongkha	<b>News in Dzongkha (International)</b>
	2115 - 2120	Dzongkha	Weather Forecast
	2120 - 2130	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2130 - 2150	Dzongkha	<b>Trowa</b>
	2150 - 2159	Dzongkha	Music Video
	2200-2210	English	<b>News in English(National)</b>
	2210 - 2211	English	News Break - Program trailers, social messages
	2211 - 2215	English	<b>News in English (International)</b>
	2215 - 2220	English	Weather Forecast & Currency Exchange Rates
2220 - 2230	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.	
2230 - 2250	English	<b>ICT</b>	
2250 - 2258		Public announcements/commercials	
2258-2300		<b>Prayers...</b> Close Transmission	
<b>WEDNESDAY</b>	1800 - 1803	Dzongkha	National Anthem, presentation of tonight's News Sig.

<b>10th January</b>	1803 - 1810	Dzongkha	<b>News in Dzongkha (National)</b>
	1810 - 1811		News Break - Program trailers, social messages
	1811 - 1815	Dzongkha	<b>News in Dzongkha (International)</b>
	1815 - 1820	Dzongkha	Weather Forecast
	1820 - 1830	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1830 - 1850	Dzongkha	<b>Medey (DDA)</b>
	1850 - 1900	Dzongkha	Music Video
	1900 - 1910	Dzongkha	<b>News in Dzongkha (National)</b>
	1910 - 1911	Dzongkha	News Break - Program trailers, social messages
	1911 - 1915	Dzongkha	<b>News in Dzongkha (International)</b>
	1915 - 1920	Dzongkha	Weather Forecast
	1920 - 1930	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1930 - 1950	Dzongkha	<b>Medey</b>
	1950 - 1955	Dzongkha	Music Video
	2000 - 2010	English	<b>News in English (National)</b>
	2010 - 2011	English	News Break - Program trailers, social messages
	2011 - 2015	English	<b>News in English (International)</b>
	2015 - 2020	English	Weather Forecast & Currency Exchange Rates
	2020 - 2030	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2030 - 2050	English	<b>Medey</b>
	2050 - 2100		Music Video
	2100 - 2110	Dzongkha	<b>News in Dzongkha (National)</b>
	2110 - 2111		News Break - Program trailers, social messages
	2111 - 2115	Dzongkha	<b>News in Dzongkha (International)</b>
	2115 - 2120	Dzongkha	Weather Forecast
	2120 - 2130	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2130 - 2150	Dzongkha	<b>Serial - Lopen</b>
	2150 - 2159	Dzongkha	Music Video
	2200-2210	English	<b>News in English(National)</b>
	2210 - 2211	English	News Break - Program trailers, social messages
	2211 - 2215	English	<b>News in English (International)</b>
	2215 - 2220	English	Weather Forecast & Currency Exchange Rates
	2220 - 2230	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
2230 - 2250	English	<b>Bureau program</b>	
2250 - 2258		Public announcements/commercials	
2258-2300		<b>Prayers...</b> Close Transmission	
<b>THURSDAY, 11th January</b>	1800 - 1803	Dzongkha	National Anthem, presentation of tonight's News Sig.
	1803 - 1810	Dzongkha	<b>News in Dzongkha (National)</b>
	1810 - 1811		News Break - Program trailers, social messages
	1811 - 1815	Dzongkha	<b>News in Dzongkha (International)</b>

	1815 - 1820	Dzongkha	Weather Forecast
	1820 - 1830	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1830 - 1850	Dzongkha	<b>Bureau program</b>
	1850 - 1900	Dzongkha	Music Video
	1900 - 1910	Dzongkha	<b>News in Dzongkha (National)</b>
	1910 - 1911	Dzongkha	News Break - Program trailers, social messages
	1911 - 1915	Dzongkha	<b>News in Dzongkha (International)</b>
	1915 - 1920	Dzongkha	Weather Forecast
	1920 - 1930	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	1930 - 1950	Dzongkha	<b>Peljor</b>
	1950 - 1955	Dzongkha	Music Video
	2000 - 2010	English	<b>News in English (National)</b>
	2010 - 2011	English	News Break - Program trailers, social messages
	2011 - 2015	English	<b>News in English (International)</b>
	2015 - 2020	English	Weather Forecast & Currency Exchange Rates
	2020 - 2030	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2030 - 2050	English	<b>Zhungchong</b>
	2050 - 2100		Music Video
	2100 - 2110	Dzongkha	<b>News in Dzongkha (National)</b>
	2110 - 2111		News Break - Program trailers, social messages
	2111 - 2115	Dzongkha	<b>News in Dzongkha (International)</b>
	2115 - 2120	Dzongkha	Weather Forecast
	2120 - 2130	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2130 - 2150	Dzongkha	<b>Serial - Chungnyen</b>
	2150 - 2159	Dzongkha	Music Video
	2200-2210	English	<b>News in English(National)</b>
	2210 - 2211	English	News Break - Program trailers, social messages
	2211 - 2215	English	<b>News in English (International)</b>
	2215 - 2220	English	Weather Forecast & Currency Exchange Rates
	2220 - 2230	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
	2230 - 2250	English	<b>Infocus</b>
	2250 - 2258		Public announcements/commercials
	2258-2300		<b>Prayers...</b> Close Transmission
<b>FRIDAY, 12th January</b>	1800 - 1803	Dzongkha	National Anthem, presentation of tonight's News Sig.
	1803 - 1810	Dzongkha	<b>News in Dzongkha (National)</b>
	1810 - 1811		News Break - Program trailers, social messages

1811 - 1815	Dzongkha	<b>News in Dzongkha (International)</b>
1815 - 1820	Dzongkha	Weather Forecast
1820 - 1830	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
1830 - 1850	Dzongkha	<b>Documentary</b>
1850 - 1900	Dzongkha	Public announcements/commercials
1900 - 1910	Dzongkha	<b>News in Dzongkha (National)</b>
1910 - 1911	Dzongkha	News Break - Program trailers, social messages
1911 - 1915	Dzongkha	<b>News in Dzongkha (International)</b>
1915 - 1920	Dzongkha	Weather Forecast
1920 - 1930	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
1930 - 1950	Dzongkha	<b>Zhungchong</b>
1950 - 1955	Dzongkha	Public announcements/commercials
2000 - 2010	English	<b>News in English (National)</b>
2010 - 2011	English	News Break - Program trailers, social messages
2011 - 2015	English	<b>News in English (International)</b>
2015 - 2020	English	Weather Forecast & Currency Exchange Rates
2020 - 2030	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
2030 - 2050	English	<b>Medey</b>
2050 - 2100		Public announcements/commercials
2100 - 2110	Dzongkha	<b>News in Dzongkha (National)</b>
2110 - 2111		News Break - Program trailers, social messages
2111 - 2115	Dzongkha	<b>News in Dzongkha (International)</b>
2115 - 2120	Dzongkha	Weather Forecast
2120 - 2130	Dzongkha	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
2130 - 2150	Dzongkha	<b>Bhutan This Week</b>
2150 - 2159	Dzongkha	Public announcements/commercials
2200-2210	English	<b>News in English(National)</b>
2210 - 2211	English	News Break - Program trailers, social messages
2211 - 2215	English	<b>News in English (International)</b>
2215 - 2220	English	Weather Forecast & Currency Exchange Rates
2220 - 2230	English	<b>Advertisement and announcement</b> Official announcements, advertisements, program trailer, social messages.
2230 - 2250	English	<b>Tserig</b>



	2250 - 2258		Public announcements/commercials
	2258-2300		<b>Prayers...</b> Close Transmission

出典：BBS 作成

19. Average number and contents of TV programmes concerning rural area per week:  
Four Bureau slots plus about 2 to 3 slots from the head office per week.
20. Average number and contents of TV programmes produced originally by BBS  
per week: 31 slots per week are originally produced by BBS.
21. Average number and contents of Live broadcast per week:  
4 slots per week are fixed, while depending upon the situation sometimes it goes to  
about 10 slots per week.

## 付属資料

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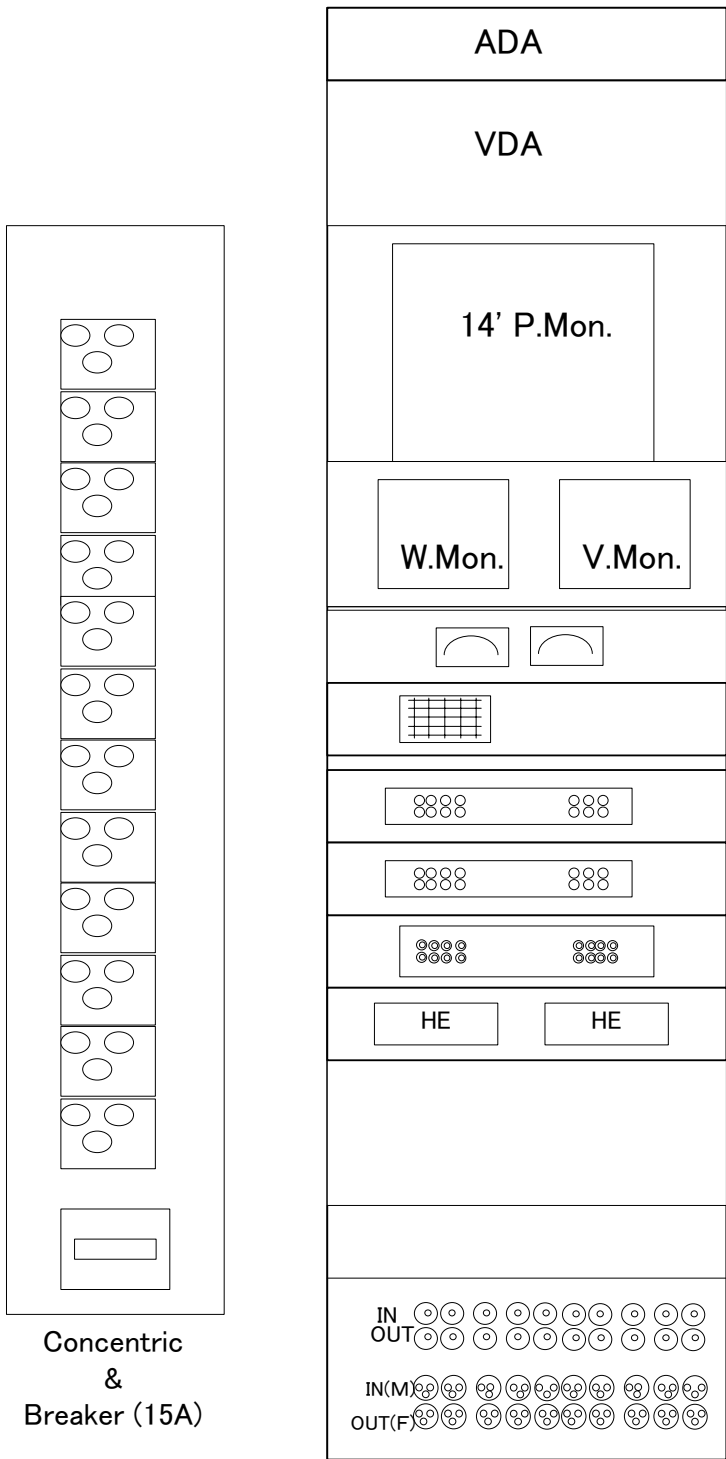
### 5. BBS 内放送機材構成図

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# Copy Room Rack



Monitor AMP VAS-2 II

V & A Matrix Switcher SWX-55AV

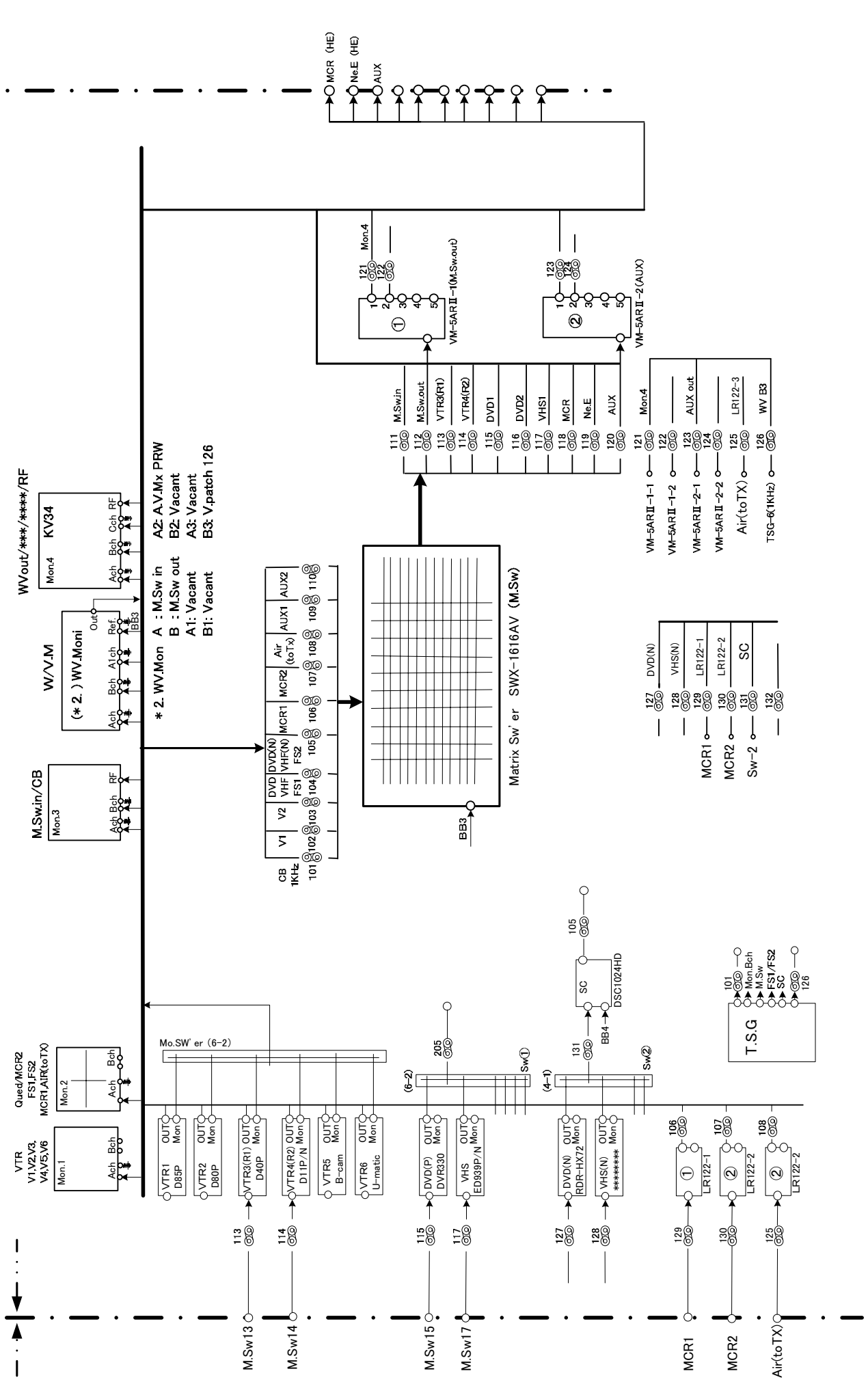
Video Patch Panel 26DV

Video Patch Panel 20DV

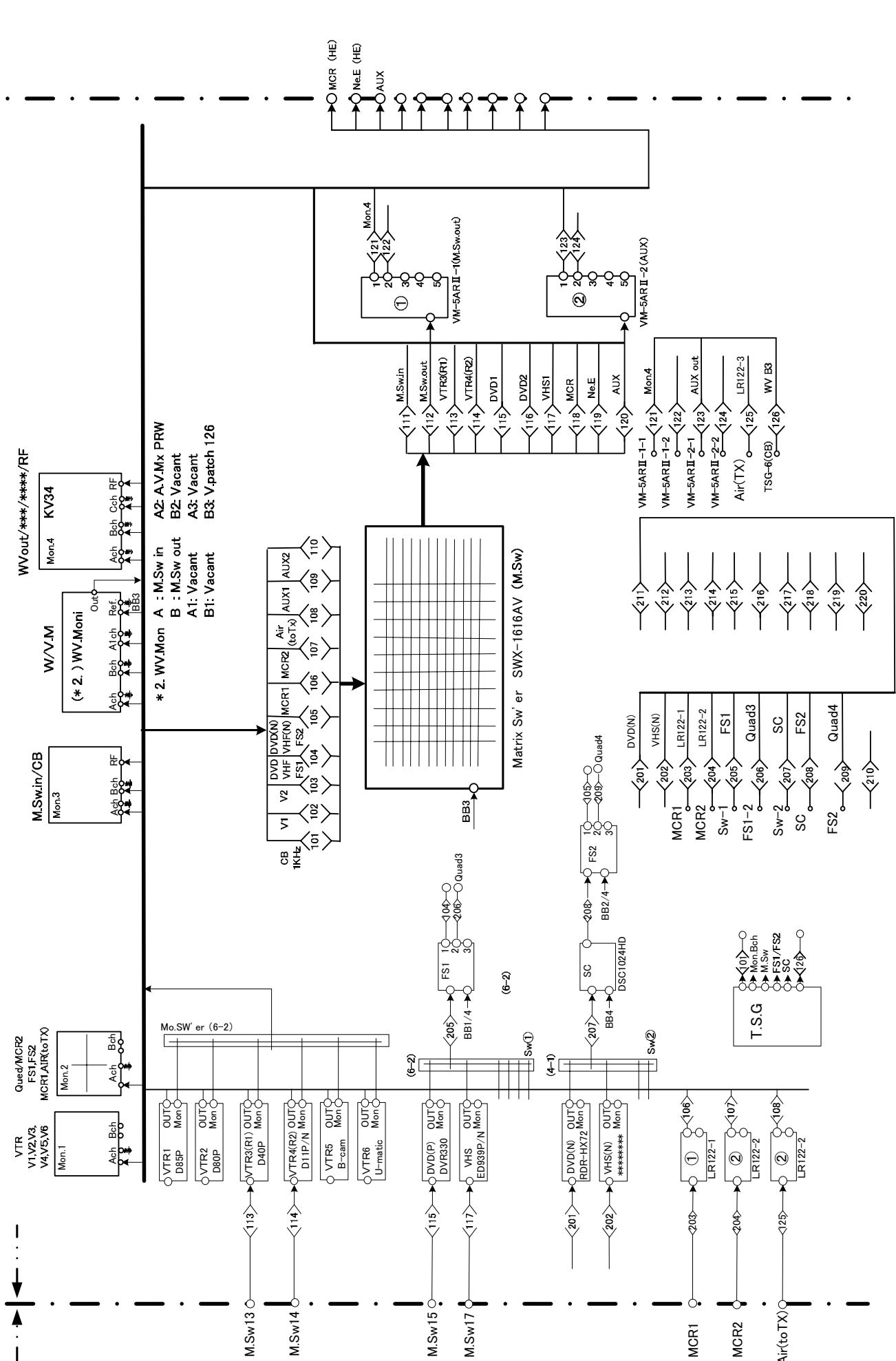
Audio Patch Panel 32KP-H

Hum Eater

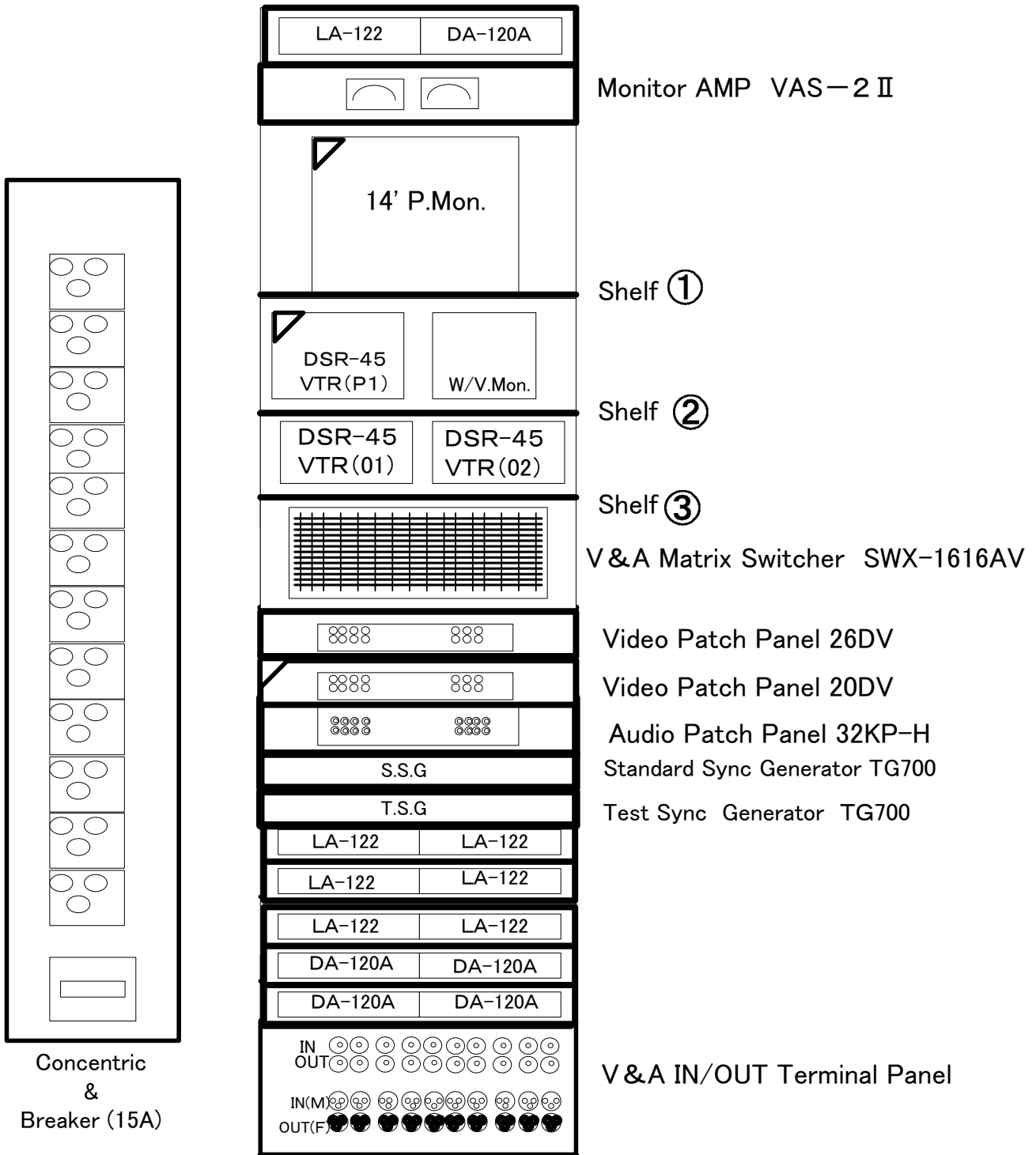
# Copy Room Diagram (Audio)



# Copy Room Diagram (Video)



# MCR Rack

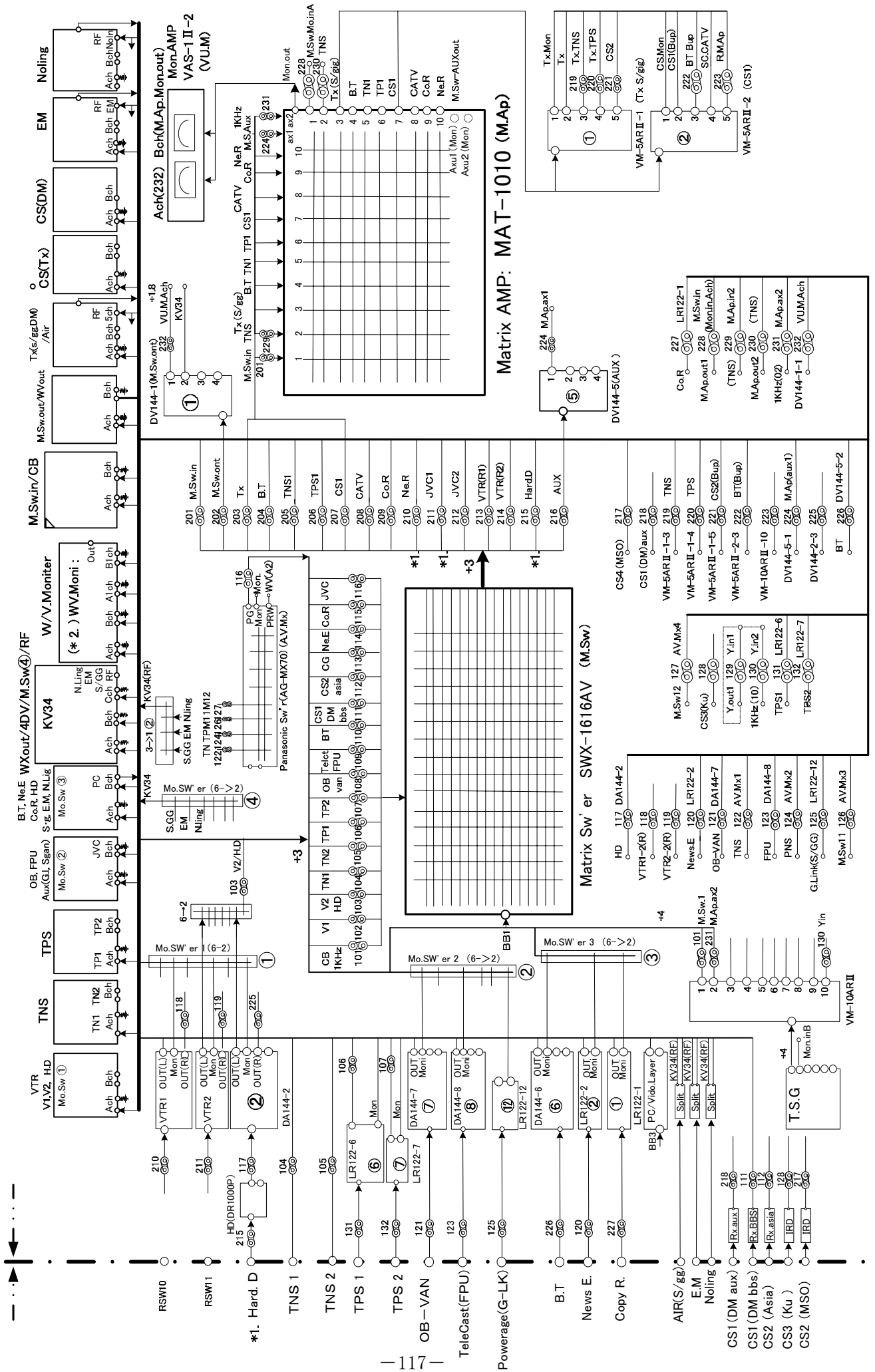


▽ : BBS providing equipment



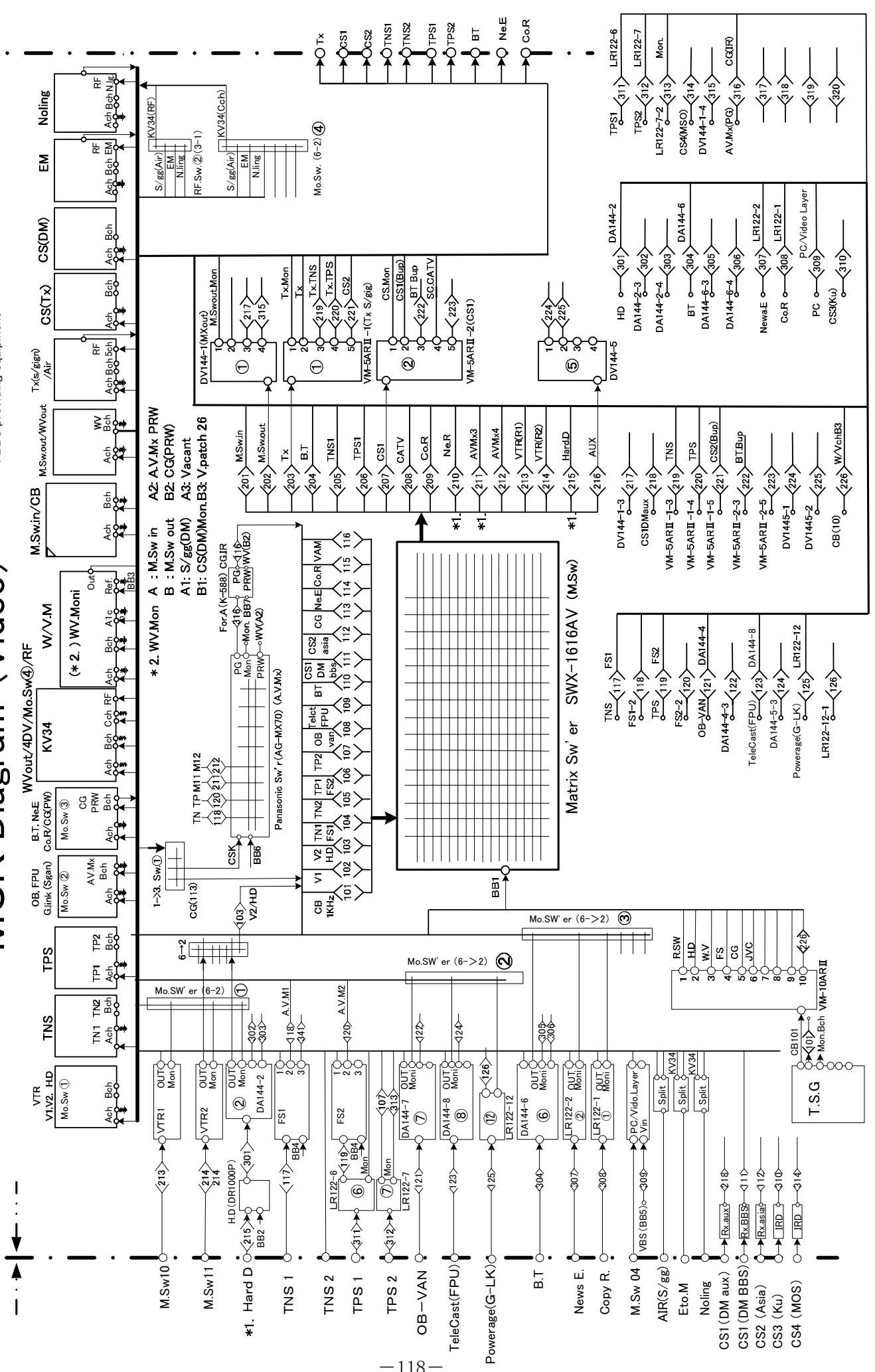
# MCR Diagram (Audio)

\*1. : Select CB When VTR is PB .

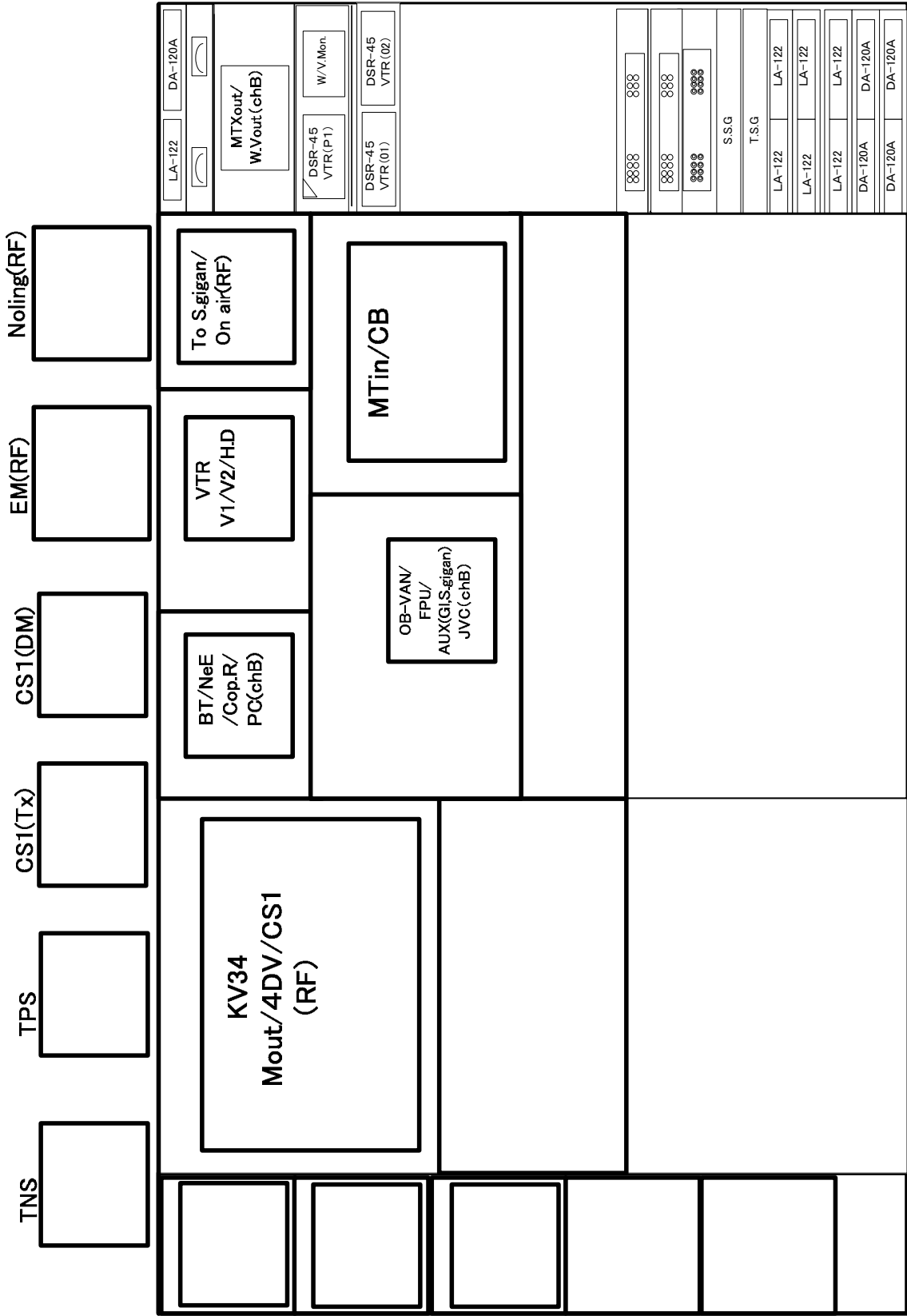


# MCR Diagram (Video)

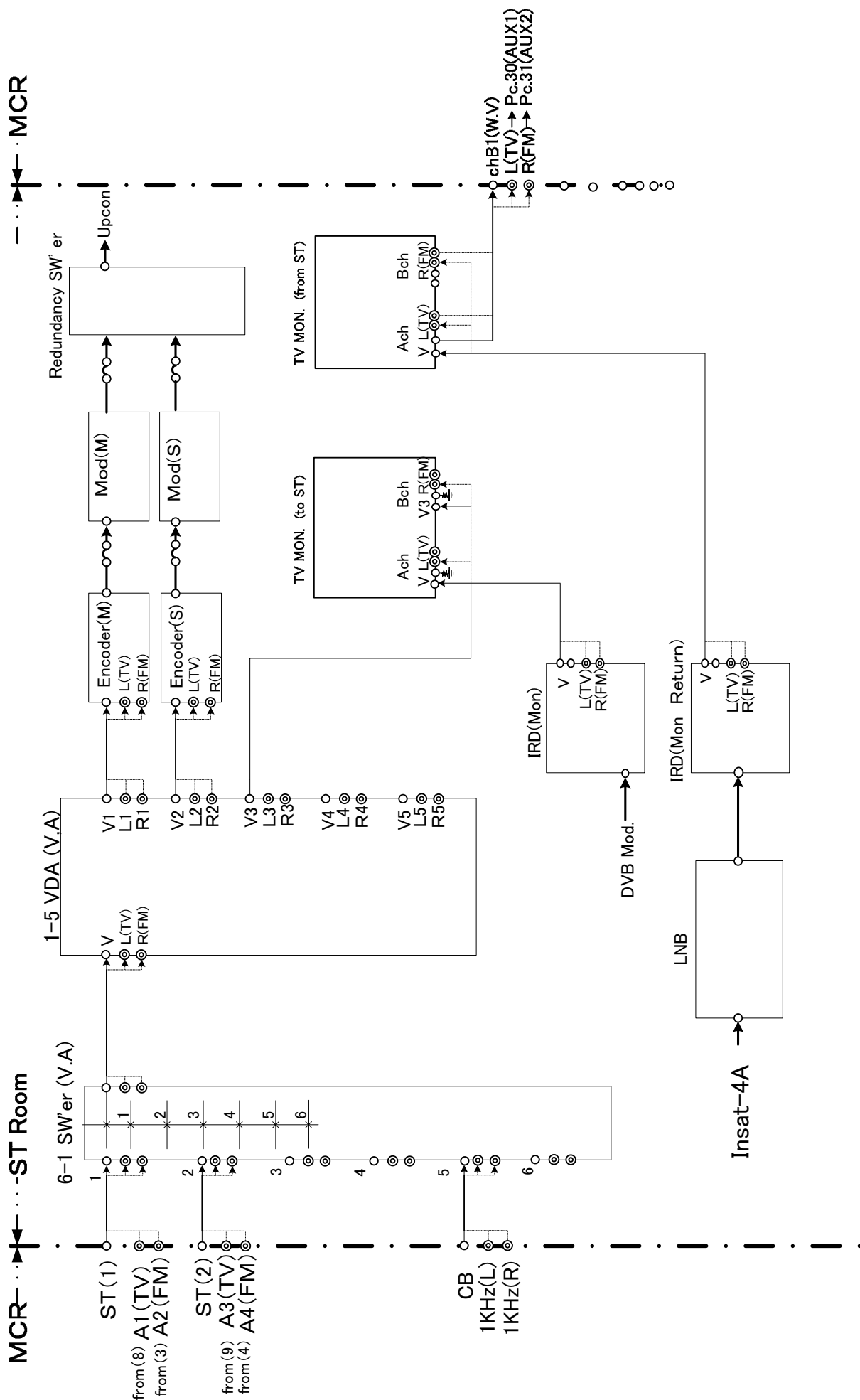
\*1. : Select CB When VTR/HD is PB.  
 □ : BBS providing equipment



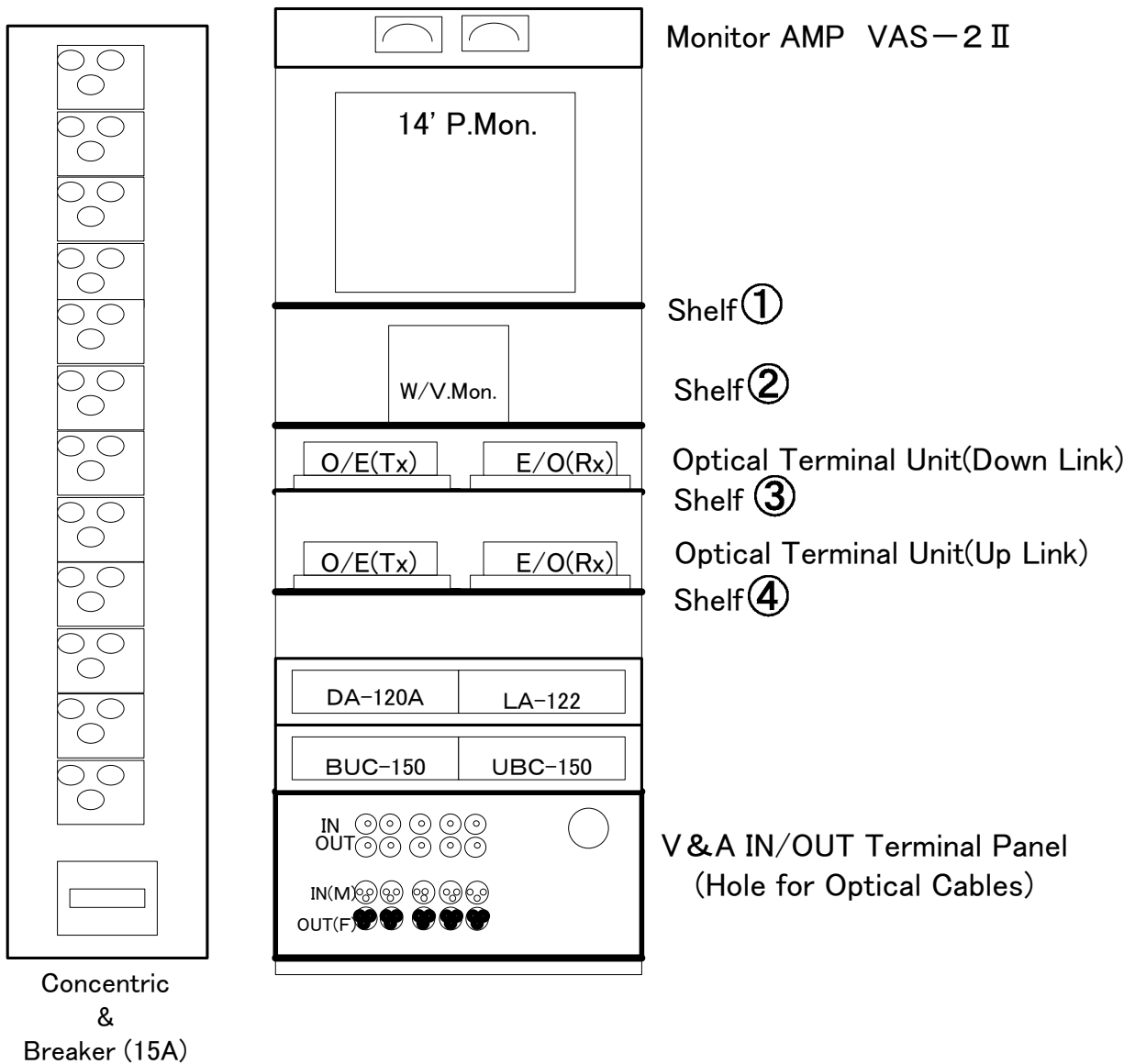
# MCR Mon. Rack



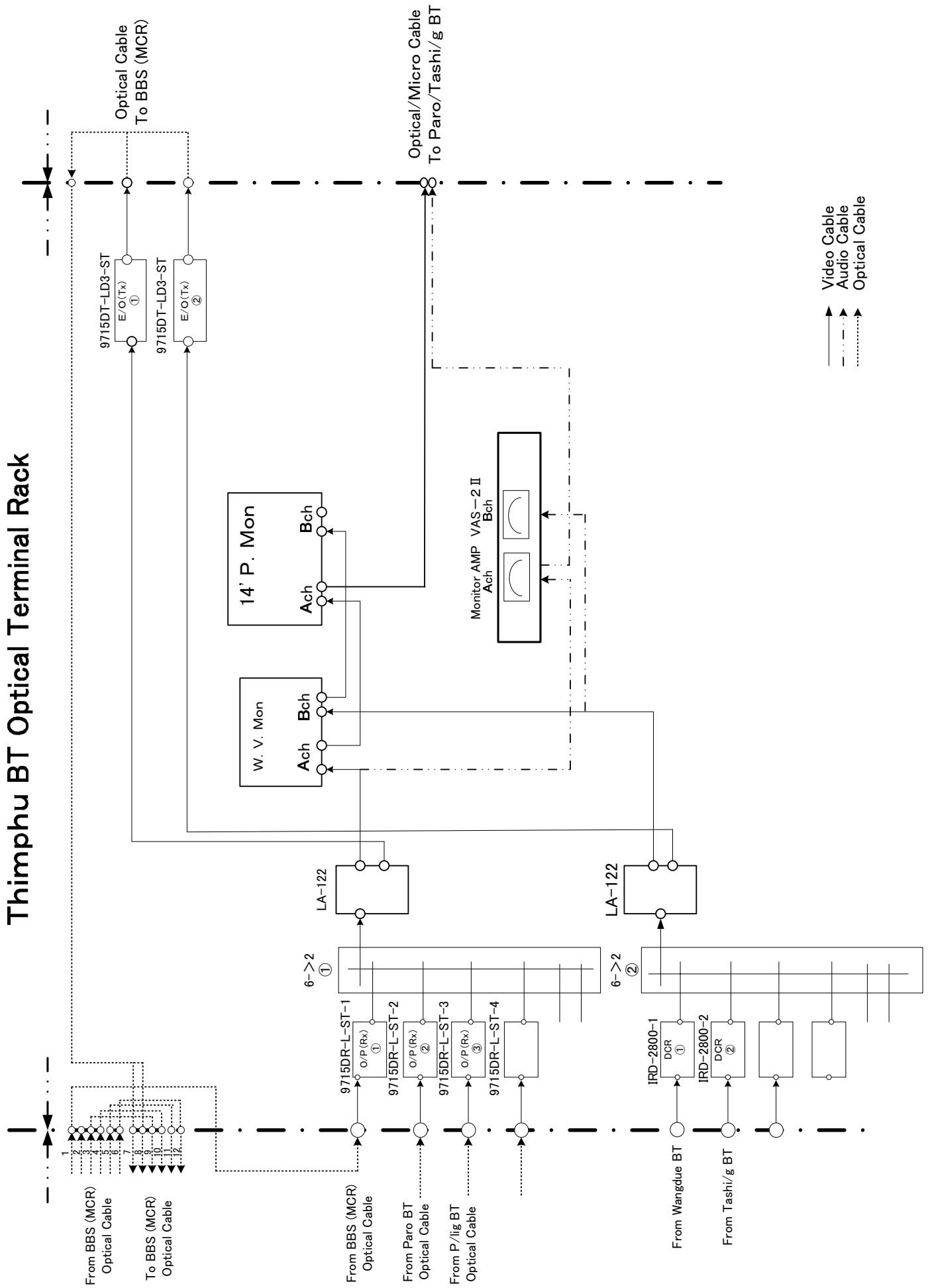
# ST Room DIAGRAM ( Video & Audio )



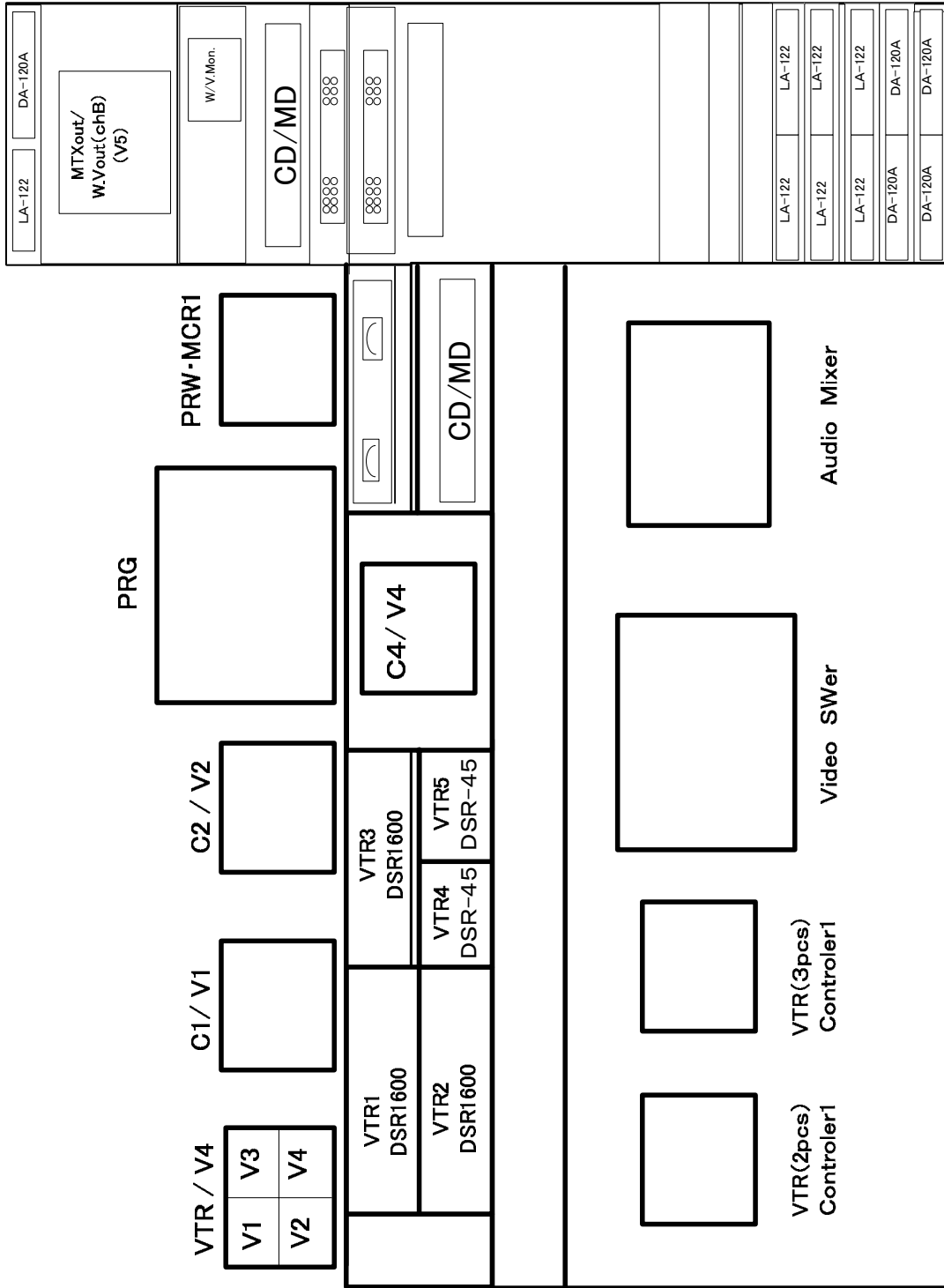
# Thimphu BT Optical Terminal Rack



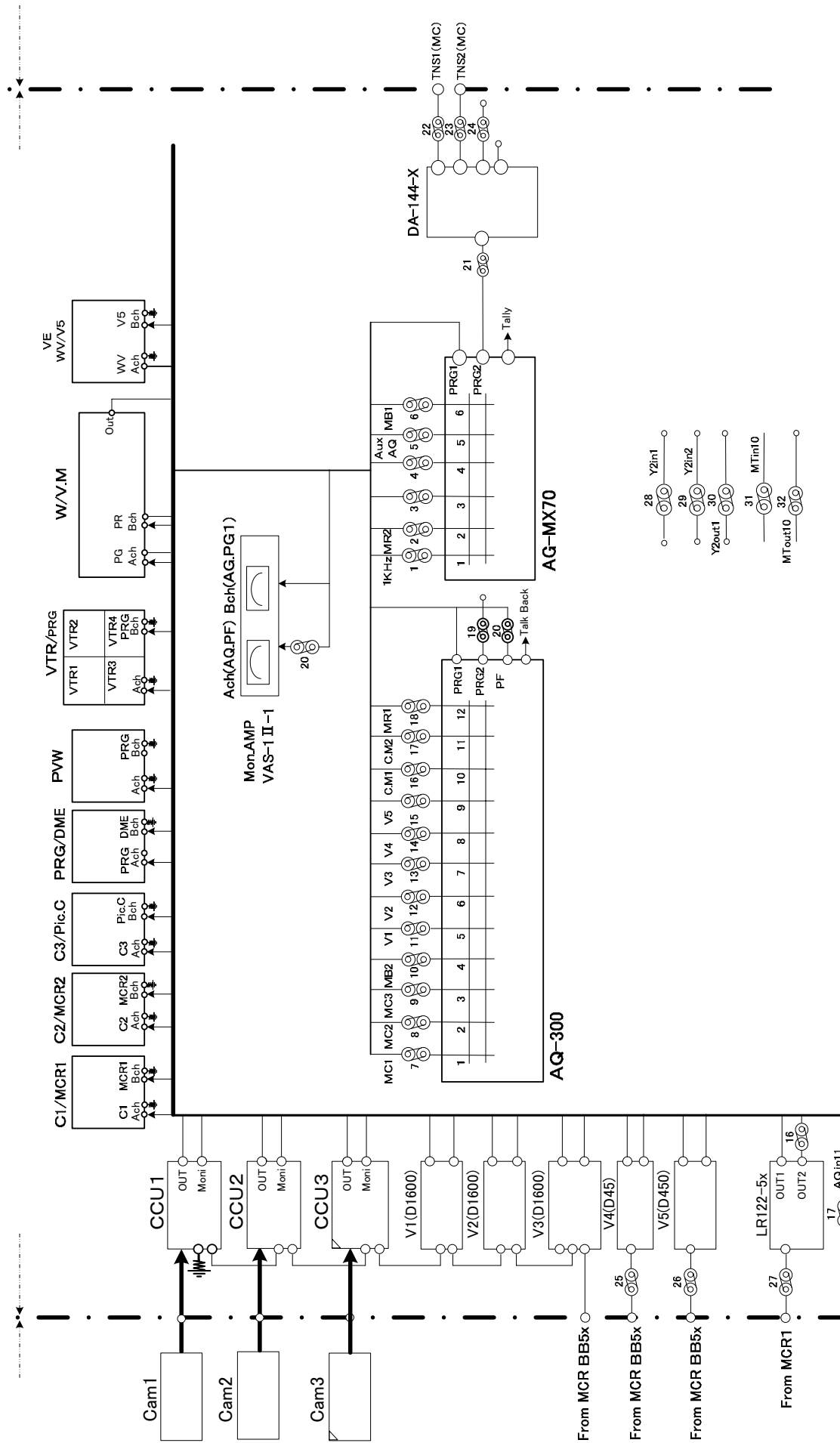
# Thimphu BT Optical Terminal Rack



# NTS Mon. Rack



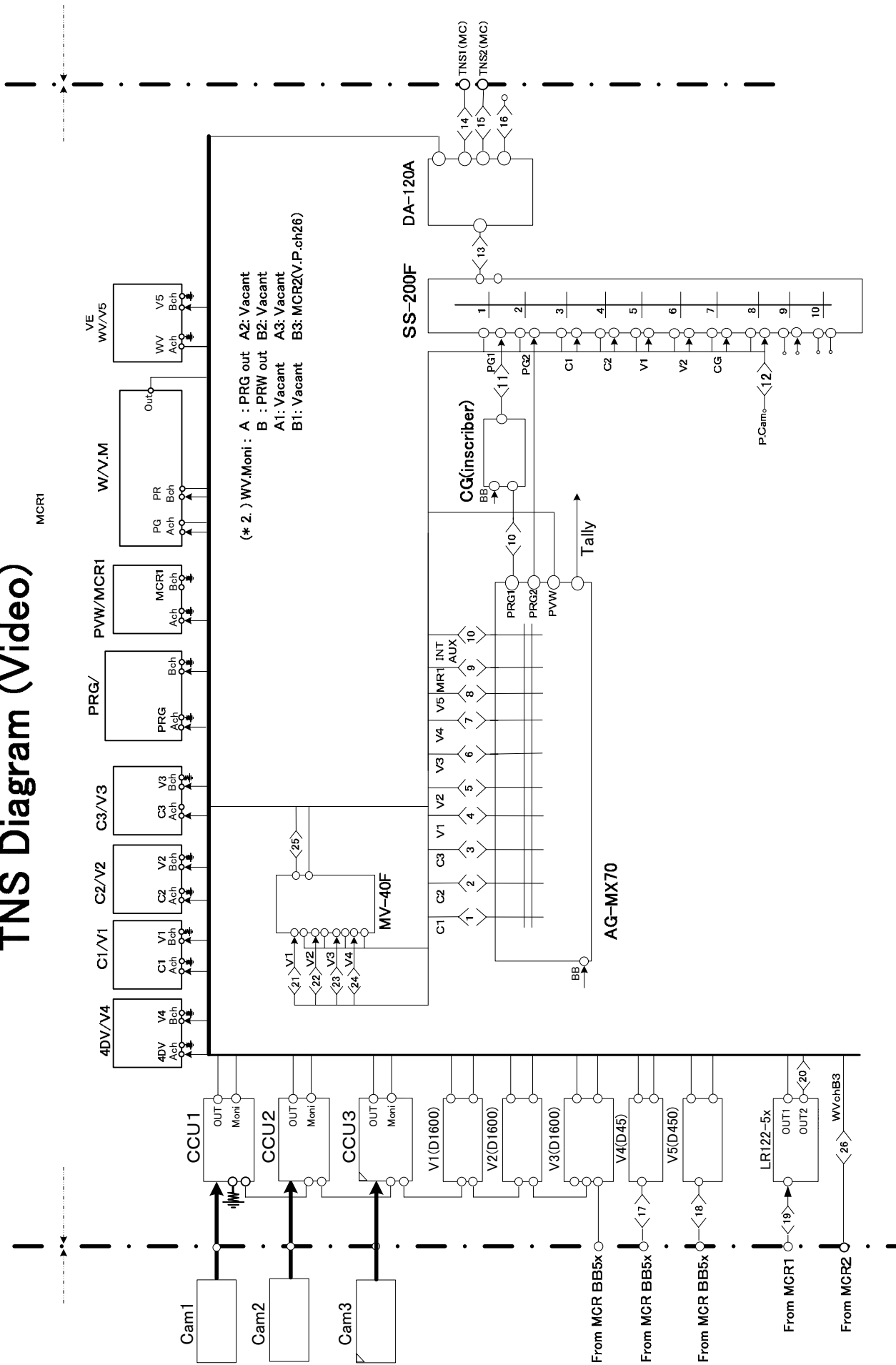
# TNS Diagram (Audio)



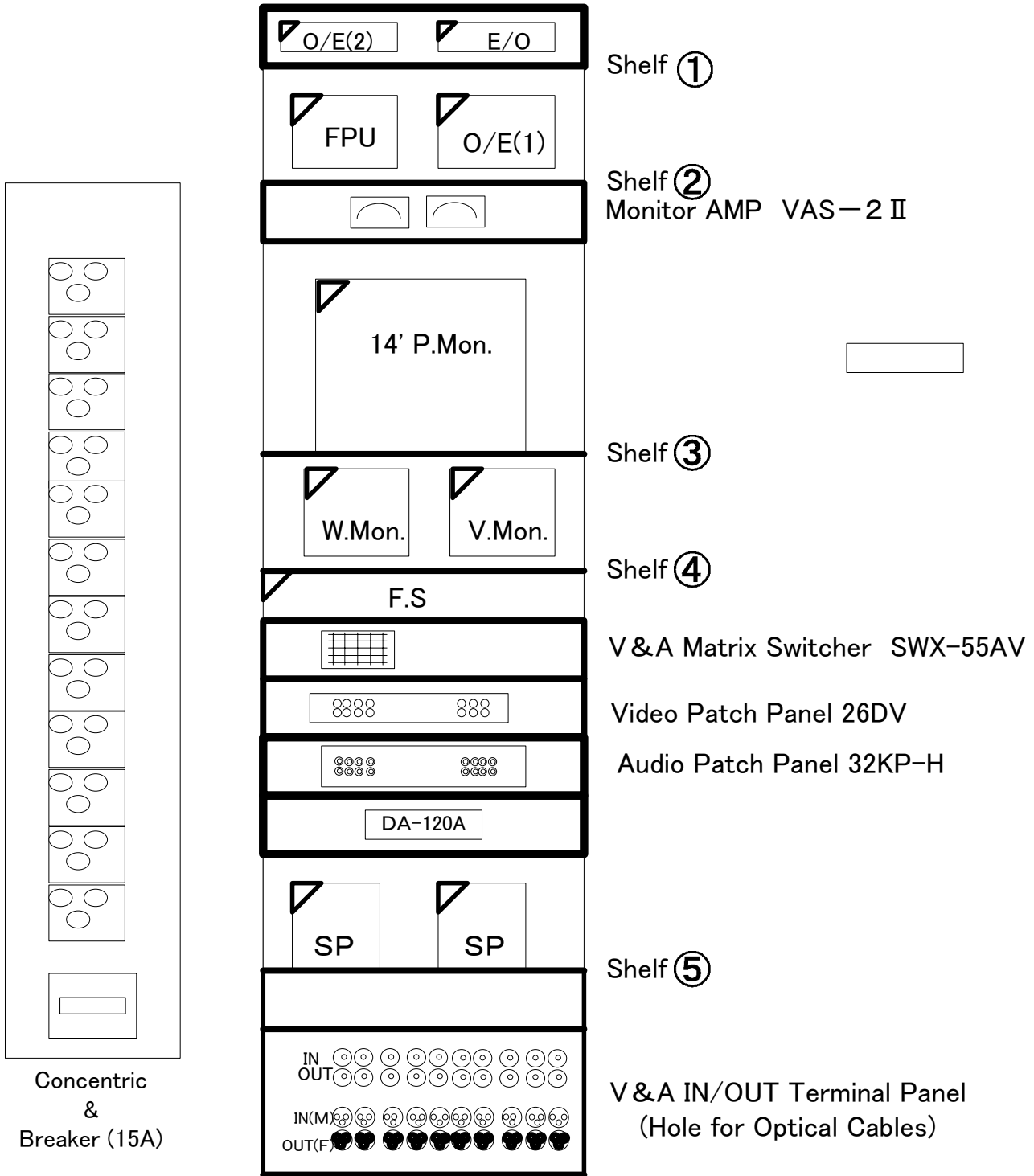


# TNS Diagram (Video)

MCR1

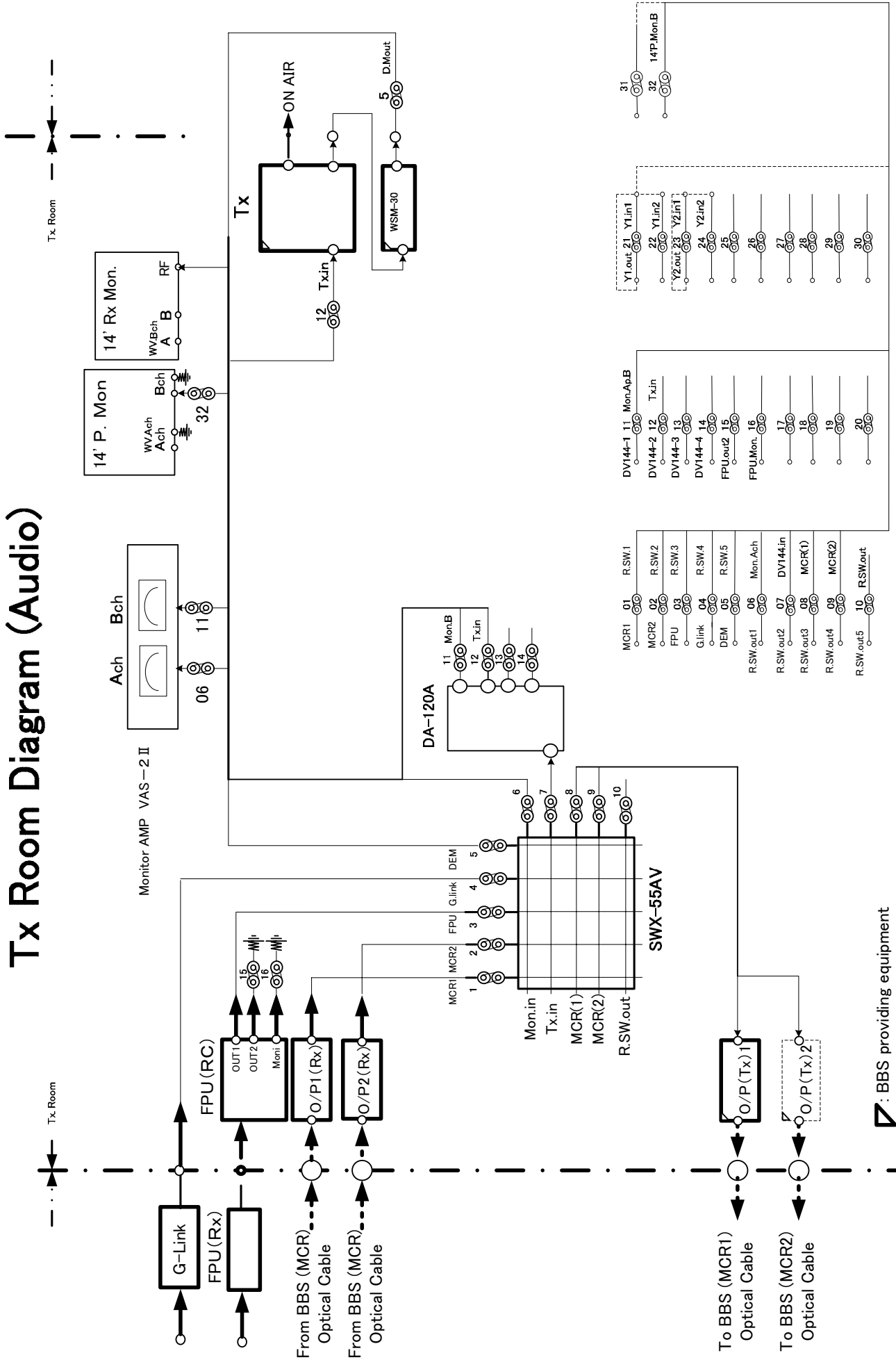


# Tx Room Rack



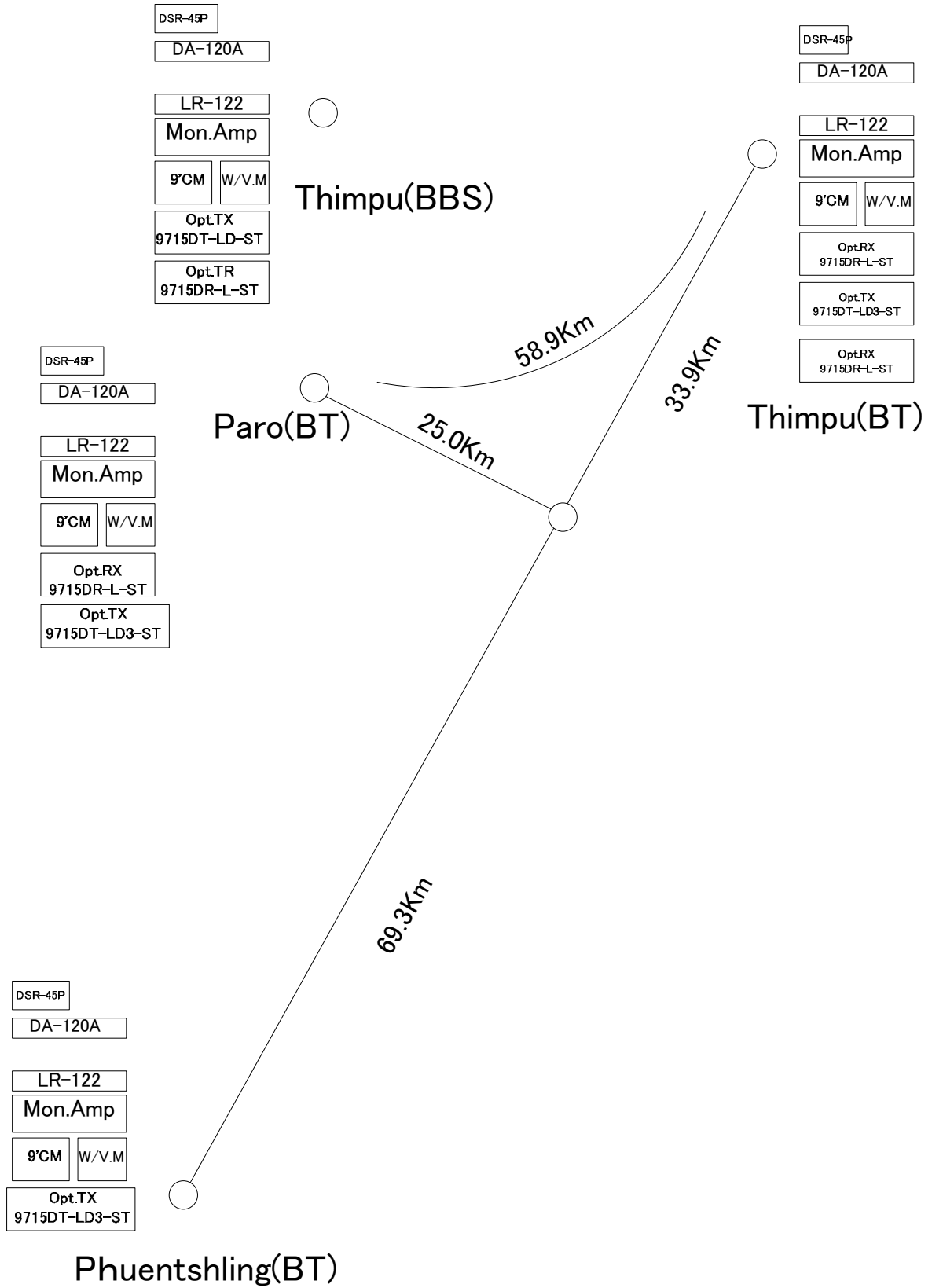
△ : BBS providing equipment

# Tx Room Diagram (Audio)





# Establish the two-way TV system using optical fiber in Western Part of Bhutan



# BBS・MCR/CCシステム概要図

- TNS: TV News Studio
- News. EDT: News Eediting Room
- Copy R.: Copy Room
- FPU: Field Pick Up Unit
- G-Link: 24GHz Link System
- OB-VAN: Outdoor Broadcasting VAN
- MCR/CC: Master Control Room /Circuit Center
- TNS: TV News Studio
- TPS: TV Production Studio
- Tx.R: Transmitter Room
- CS Up Link : Communication Satellite Up Link System
- B.T: Bhutan Telecom

