

## Annex 9: Satellite TV Feasibility Study

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April 2008

## Satellite TV Feasibility Study

**'While for many Afghans TV is still unavailable, nevertheless as other sections of this report point out, the medium is growing in popularity and availability. This annex is based on a report recently carried out for MSS into the technical and commercial viability of setting up a new channel in Afghanistan.'**

The following feasibility study maps out the basic structure, costs and equipment required to produce a new 24 hour Television broadcast station in Afghanistan. This is a commercial venture and the ideas put forward here are aimed at producing a high quality broadcast with a financially sustainable cost base which can be grown when necessary.

The technology required to build a broadcast station is easily available however the challenge of producing a new television station based in Afghanistan is that of local broadcast engineering and experienced broadcasters. Training and development of local staff will be a priority and a number of engineering and broadcasting consultants will be required in the first year of operation to build this capacity.

There is currently a strong proliferation of satellite broadcasters in Afghanistan with **six established stations and a further fifteen expected**. In this competitive environment the quality of programming and committed financial backing is essential to position the channel in the premier league of the region's broadcasters.

The concept is to produce the TV station facility in three 'plug and play' modules. The first is the basic office setup with PC's and servers which is will be sourced locally or from Dubai. The second is the channel automation system, which is provided by Avid Inews software installed on a group of edit suites, PC's and the control room computer. This system plucks the digitised video from the main server and plays it out to the encoder for satellite transmission without any need for tapes.

The control room, studio camera link up, encoder, amplifier and satellite dish would be sourced from a company either in the UK or Germany who specialise in fly-away outside broadcast units. This means we know that the equipment in the critical 'satellite transmission module' will integrate together, has been tested before fly in and the engineers who arrive will be able to put it together within a matter of weeks and train staff. This procurement system also provides a one stop shop for servicing maintenance and trouble shooting.

The Satellite transponder would probably be Eurobird 9 in the eutelsat group which transmits many of the existing Afghan satellite channels to the same footprint. This is a proven platform and eutelsat is familiar with the Afghan market. Viewers will find the channel listed beside Tolo and all the others when it goes on air.

## Channel operation

### The Control Room

*Typical control room with Avid inews system to the left of picture*



The control room is led by the producer or editor, who plays out the channel's programmes in an agreed order from the 'rundown' or programme list. This is organised by a software programme (inews) which transmits pre-recorded programmes from the server or live programmes, eg news from the studio and sends them to the encoder for transmission to the satellite.

The control room also controls the live programmes from the studio. A 'Talkback' system allows the producer and director to talk to the presenters and cameramen to get the best shots and inform them of timings and running order.

A vision mixer seen above in the centre of the picture allows the director to switch between up to 8 sources, live studio cameras, pre-recorded programmes or reporters at live positions in the field. An audio mixer adjusts the sound levels from each of these sources to ensure the output sound remains at the same level and quality.

A text producing system allows the control room to write news or updates on a scrolling ticker across the bottom of the screen or produce breaking news straps in the lower third of the screen.

A control room will generally be staffed by a producer, director, sound technician and text producer. A broadcast technician should always be available to resolve technical issues.

## The Satellite Uplink and Downlink



The satellite uplink is the transmission system which sends the channel's signal to the leased satellite for rebroadcast to the target area. This consists of an encoder which compresses the audio and video produced by the channel into a digital signal. This signal is then amplified by a high power amplifier and passed to the satellite dish which is directed and sends the signal towards the leased satellite. The satellite downlink is the part of the system that receives signals from other broadcasters around the world and decodes the signal into the video and audio that we can use to broadcast.

### **The Satellite Transponder**

The satellite transponder is the transmitter on the satellite dedicated to the transmission of a television or radio channel transmission from the uplink or base station to the surface of the earth. This transponder must be leased on a long term basis from the administrator of the satellite. The transponder is selected on the basis of its broadcast footprint matching the requirement of the client, In this case Afghanistan and surrounding countries. There are a number of satellites which could be available for this project, the optimum being operated by the Eutelsat company. Most existing Afghan satellite channels are broadcast by the Eutelsat group. The transponder along with its associated engineering costs is a major financial investment of around \$500,000 per year.



## EUTELSAT'S NEW VIDEO BROADCASTING LOCATION

### DUAL-FEED RECEPTION OF TELEVISION CHANNELS FROM 9 AND 13 DEGREES EAST

Eutelsat has opened a new video broadcasting location at 9 degrees East, adjacent to its prime HOT BIRD™ neighbourhood. The recently re-deployed and newly re-branded EUROBIRD™ 9 satellite, formerly the high-performance HOT BIRD™ 2, now enables Direct-to-Home (DTH) TV households to receive programmes from both orbital locations using an off-the-shelf dual-feed satellite dish.

EUROBIRD™ 9 features 20 high-power Ku-band transponders, covering Europe, North Africa and the Middle East. Optimised for DTH broadcasting, and located just four degrees from Eutelsat's premium video neighbourhood at 13 degrees East, EUROBIRD™ 9 is ideal for multi-satellite reception, giving broadcasters access to one of the most vibrant markets worldwide for satellite TV and radio, via capacity at highly attractive rates. Viewers with a simple dual-feed LNB fitted to their satellite dish can also benefit from the 1000+ channels at Eutelsat's prime HOT BIRD™ neighbourhood, over 50% of which are available free-to-air.

To support multi-satellite reception, Eutelsat is promoting new low-cost consumer solutions to enable satellite households to easily upgrade their existing equipment to receive channels from 9 degrees East by fitting a second LNB beside the one pointed to the HOT BIRD™ neighbourhood.

The repositioning of EUROBIRD™ 9 follows the successful launches of Eutelsat's HOT BIRD™ 7A and 8 satellites in 2006, which have freed earlier HOT BIRD™ capacity for redeployment at orbital positions with significant growth potential. Increased capacity at the 9 degrees East orbital position will be ensured by the future relocation of other Eutelsat satellites, as the company puts new HOT BIRD™ satellites into service.

#### KEY MARKETS

- Europe
- North Africa
- Middle East

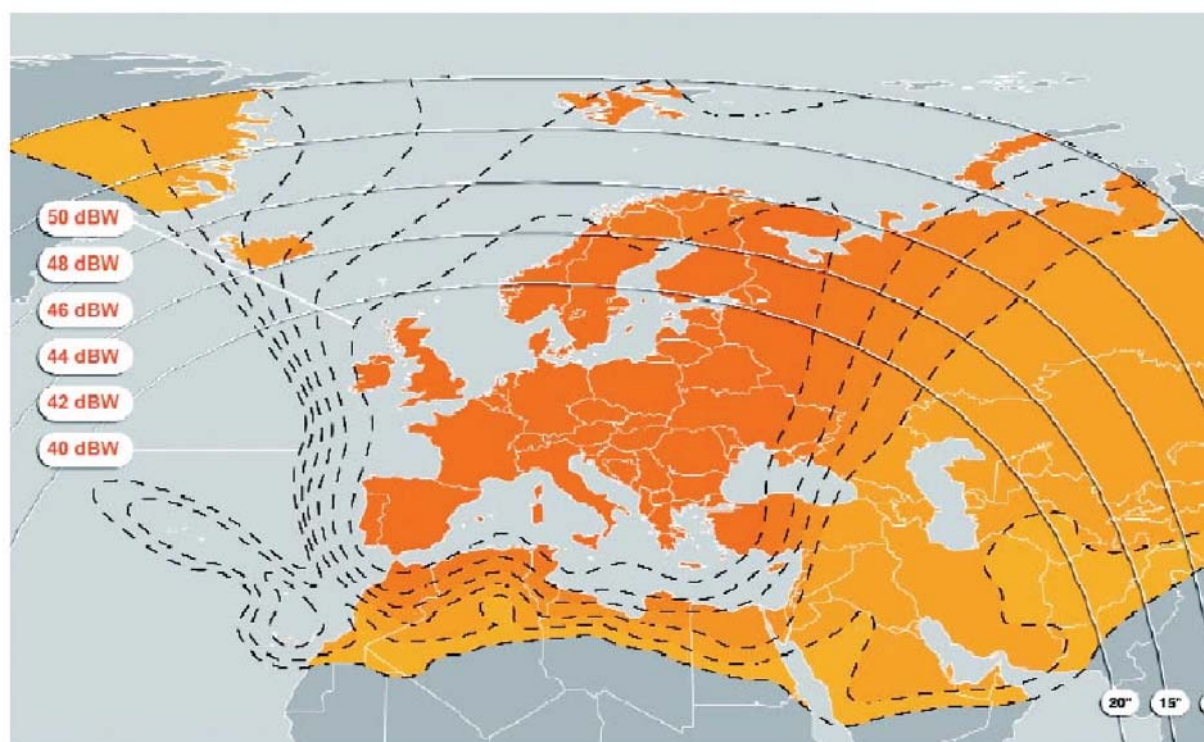
#### KEY SERVICES

- TV and radio broadcasting
- Regional/local TV broadcasting
- High Definition TV
- Internet applications

#### KEY FEATURES

- Capacity at particularly attractive rates
- Broadcasters gain access to one of the most vibrant markets worldwide for satellite TV and radio
- Viewers tuned to EUROBIRD™ 9 with a simple dual-feed LNB fitted to their satellite dish can also benefit from the 1000+ channels at Eutelsat's prime HOT BIRD™ neighbourhood, over 50% of which are available free-to-air.
- Viewers receiving HOT BIRD™ satellites can install CLIPSAT™ (extension bracket) for double reception without changing antenna configuration.

## COVERAGE MAP AND SATELLITE INFO



EUROBIIRD™ 9 downlink coverage

Satellite manufacturer:	EADS Astrium
Downlink frequencies:	11.70 – 12.50 GHz
Transponder bandwidth:	33 MHz
Launch date:	21/11/1996
Launcher:	Atlas IIA
Orbital position:	9 degrees East
Operational transponders:	20

## Broadcasting Equipment

### TV Studio Equipment

The studio must be equipped with three high quality cameras on wheeled bases connected by cable to the control room. Two of these cameras would be equipped with autocue systems which are updated by the producer's computer sited in the control room. Both sets have a lighting rig and microphones. In addition there must also be a system of communication between the control room and the presenters. This is called 'Talkback' and allows the producer in the control room to speak into the earpiece of the presenter and cameramen to give them direction. For the news set it is necessary to set a PC system into the desk of the presenter so that they can monitor the wire services and see what items are coming next in the rundown of the programme through Inews.

### TV Control Room Equipment

The control room consists of a rack of 2 main monitors and an additional 8 monitors for other video sources. The cameras in the studio are connected to the vision mixer which allows the director to switch between cameras or pre-recorded spots from the control room. The microphones in the studio are connected to an audio mixer in the control room, again operated by the director allowing him or her to adjust sound levels for the broadcast. The producer must have a computer loaded with Inews software to organise the running order and update the autocue system. The producer must also have a 'talkback' system to speak into the earpiece of the presenter. The control room should also have a text producing computer which will produce the titles which appear on the screen and a number of tape decks which record the programme being broadcast and for playing out pre-recorded spots.

### Uplink Equipment

The uplink as described takes the audio and video being broadcast from the control rooms and turns it into a signal which can be sent to the satellite. This consists of an encoder, a high powered amplifier and a satellite dish. The Uplink system requires a high power input and therefore a separate generator may be required.

### TV Editing Equipment

It is suggested that a news and features operation will require 6 dedicated edit suites, 3 for news and 3 for features. These consist of a high powered PC loaded with an editing programme such as Avid Edit with an additional large LCD screen. The edit suite will also be equipped with a large external hard drive (500GB) and several tape decks for recording and inputting video and audio material. These edit suites will be provided by the Avid Inews team in their quote for newsroom integration (appendix).

## The Automation System



The news management system is a software programme which integrates the TV production process. Inews allows the producer or editor to create a list of programmes, live spots, and features that will be broadcast during the day. Each film or spot is created by an editor and stored electronically on the main server with an identifying code (egF236). The Inews system allows the producer to enter the code of the programme he wants to broadcast at a certain time of the day, in the list of programmes. The computer will then automatically retrieve that programme from the main server and broadcast it whenever the producer requires it with no need for tapes. The Inews system is installed on ten PCs in the newsroom so that, the editor, the producers and the presenter all know what is coming next in the schedule. The Inews system also sends text that the producer writes to the presenter's autocue and produces on screen graphics like name tags on reports.

Avid Media Factory for Broadcast is a fully integrated system from the newsroom computers to the control room layout. At the heart of the system is an Avid Unity MediaNetwork shared storage environment supporting a number of Avid NewsCutter editors in an integrated collaborative workgroup environment. Acquisition of new material is carried out using an Avid AirSpeed 2 ingest with 'Edit While Record' technology which means that editors can be working on a story within seconds of the recording being initiated. Once the story is complete it is published to the AirSpeed for on-air playout. The Inews option provides everything needed for the creation, editing and management of a Newsroom environment. From wire feed to the finished newsreader's script integrated with the media editing and playout processes. The Avid Interplay workflow engine enables users to quickly and easily locate all media assets currently available and the Avid Capture Manager manages the acquisition of new material.

## Television Studios



The best initial setup for a television studio for this channel is one large studio with at least 15 feet of height to accommodate light fittings. The studio would be covered by 3 cameras linked to the control room vision mixer.

At one end of the studio would be the set for the news programme, on the side wall of the studio a blue screen wall for graphics projection and at the opposite end of the studio a lifestyle programme set with couch arrangement and a small stage for performers.

This set can be used for a daytime lifestyle programme and an in depth interview programme or discussion programme in the evenings. Having these two sets in one studio allows the same cameras and studio to be used for both sets, thus reducing production costs.

This arrangement also allows the director to easily switch between the morning lifestyle programme and news bulletins.

A second studio could be set up for pre-recorded programmes where fixed cameras and a control room are not required.

## Library/Ingest

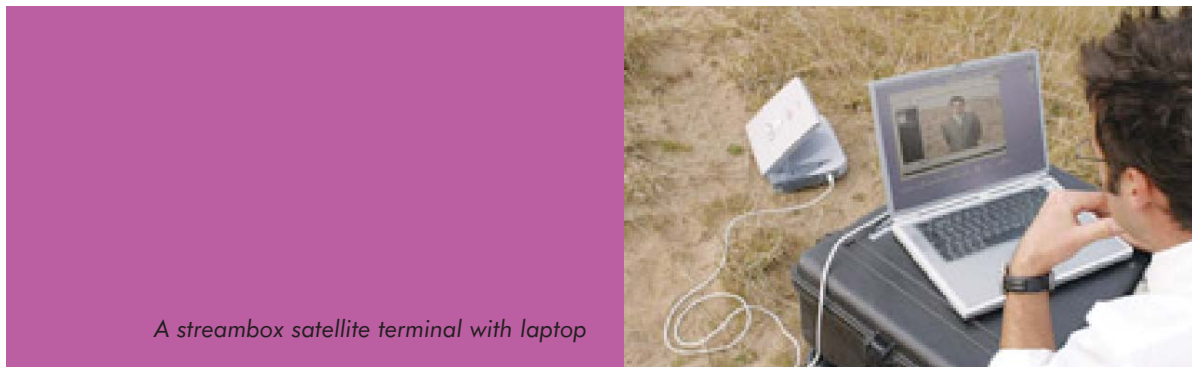
The Library is a key component of the operation of the TV and Radio station. All tapes from reporters will be ingested and digitised for storage on the server for later broadcast. The library operators will also categorise and maintain a database of previous reports, filed footage and graphics for later use in news and features programmes. The library operators will be responsible for finding necessary footage at the request of the news and features producers. They must be equipped with at least two PC's and ingest decks (supplied by AVID) for digitising several formats of video tape, audio tape and DVD. They should also be equipped with a PC screen capture device for recording internet video.

## The News Operation



The news programmes will be broadcast principally in Pashto with some Dari. The editor should seek to maximise the quantity of original news production 'in house' which will be supplemented by footage from subscriptions to Reuters and AP news agencies.

The news operation will require six producers and six reporters with cameramen, two of these would be based in shoebox bureaus in the South of the country. These shoebox stations should be equipped with satellite phone terminals which can send reports back to Kabul across a satellite/broadband connection or be used for live two way interviews.



*A streambox satellite terminal with laptop*

Another two reporters based in Kabul should be available to travel to the provinces to cover particular stories. These could be brought back to Kabul for edit or fed back from an additional Satellite phone terminal.

The news programmes could be presented from a studio in Kabul with two presenters for the main bulletins and a single presenter for each of the bulletins throughout the day and on the weekends. At least three presenters would be needed to cover this rota.

Live and packaged reports from foreign locations could be obtained by using stringers or partner network reporters from around the world at commercial uplink points. This is an effective and economical way of retaining a foreign news service. Live translators can be used on air for two-way interviews if Dari or Pashto speaking reporters are not available at a specific location.



**The Morning Programme**

The morning programme is a lifestyle show anchored by a male and female presenter between 9am and 1pm daily. The show is presented in an informal style from a couch and can include educational spots, discussion, interviews with personalities, discussions and music and dance. The programme is punctuated with various news bulletins. Requires a dedicated team of 6 producers and researchers to produce the content required for daily production.

**Newsnight**

The Newsnight programme would be an in depth interviews and political discussion programme presented from the couch set but with more serious lighting to distinguish the set from the morning programme. This programme would provide more detailed analysis of domestic and international political issues.

**Films, Features and Childrens Programmes**

While many features and documentaries will be made in house there will be a requirement to buy in a number of films, comedy's and children's programmes which can be dubbed into Dari or Pashto. The cost of this type of programming depends on the country of origin, popularity and the cost of its production. Approximately 50 hours of bought in programming would be required per week which will be a significant financial commitment.

## Terrestrial Broadcast



The television station could increase its viewers and advertising revenue if in addition to the satellite signal it also broadcast a terrestrial signal in the provincial capitals.

This would be achieved by receiving the satellite signal with a conventional satellite receiver and using a signal converter and amplifier to transmit the signal to a terrestrial mast transmitter. This could be achieved at relatively low cost but would require the negotiation of the use of frequency for each transmission area.

At least one engineer would be required to staff each transmitter.

Cost per Transmitter \$15,000 + staffing costs and license fee

## Advertising and Revenue

Revenue for the station would come predominantly from advertising revenue. A standard commercial station would expect to air 12 minutes of advertisements per hour in 15 second spots. If the station was to expect 12 minutes per hour for its 18 hour daily operation it has a potential 216 minutes of adverts per day.

Tolo TV and Sham Shad TV advertise rates of \$50 per 30 second advert spot in the daytime to around \$150 at peak time. However, take-up on both channels is not full and both carry blank slates during their commercial breaks promoting their advertisement slots. The market is likely to become more crowded over the course of the next 18 months with a further 15 television stations planned for Afghanistan.

At this time a cautious approach to the potential revenue from advertising should be adopted. Initial estimates of revenue should be estimated at 25% capacity sold at an average of \$50 per 30 seconds of advert. This would provide a realistic first year income from advertising of just over \$1.8m.

The second source of revenue is programme and picture sales. Foreign news operations often buy pictures and interviews from private news agencies where they have no crews of their own. 30 seconds of important footage can sell for around \$10,000 and use of the stations correspondents for live two way interviews also sell for around \$5000. This is a significant form of income which should be cultivated. Programmes such as documentaries made by the TV station may also be sold on the international market.

Advertisement Production is a third possible income. Companies which do not yet have professionally produced adverts could have them produced by a subdivision of the TV station. This is an important facility for the station to develop as it opens up the potential of more companies to advertise. Deals could be done to produce adverts for free on signing of a contract to advertise with the station for a fixed period.

## Budget

### Basic IT setup

10 Inews PC's with double monitors  
 40 Standard PC's  
 4 Mac Pro Graphics Computers  
 Radio Library Server  
 Microsoft Office Licenses  
 Radio Edit Software  
 Cabling and Networking Costs

**TOTAL \$100,000**

### Avid Media Factory

Playout Server x 2  
 Ingest Server  
 4 Edit Suites  
 2 News Assist Terminals  
 10 Inews Licenses  
 Deko Graphics Suite  
 Main Server 8TB (250 hours)  
 Avid Inews training  
 1 Year Technical Support

**TOTAL \$500,000**

### Control Room

2 Master Monitors \$4000  
 8 Flat Screen Monitors \$16,000  
 1 Vision Mixer \$25,000  
 1 Audio Mixer \$20,000  
 2 Tape Deck Input \$10,000  
 2 Tape Recording Deck \$5000  
 1 DVD deck input \$3000  
 Wiring and Networking \$3000  
 Talkback System \$2000  
 Engineering \$10,000

**TOTAL \$98,000**

### TV Studio

3 Sony XD Studio Cameras \$42,000  
 Autocue x 2 \$12,000  
 Set Design and production \$20,000  
 40" Flat Screen TV's x 4 \$8000  
 Microphones \$10,000  
 Lighting \$13,000  
 Wiring and Networking \$10,000  
 Engineering \$10,000

**TOTAL \$125,000**

### Uplink and Downlink

Uplink Dish x 2  
 Downlink Dish  
 Satellite Encoder  
 Satellite Decoder  
 Demodulators  
 High Power Amplifiers x 2  
 Cabling and Integration  
 Engineering Work

**TOTAL \$235,000**

### Satellite Transponder and Engineering per annum

**TOTAL \$400,000**

### Programme Making Equipment

Sony Z1 Cameras x 10 \$40,000  
 Sony XD Cameras x 4 \$40,000  
 Microphones \$20,000  
 Satellite Videophone Units \$75,000  
 Tripods and tracks \$12,000  
 Batteries and Stock \$5000

**TOTAL \$192,000**

**Total Equipment Cost: \$1.65m**

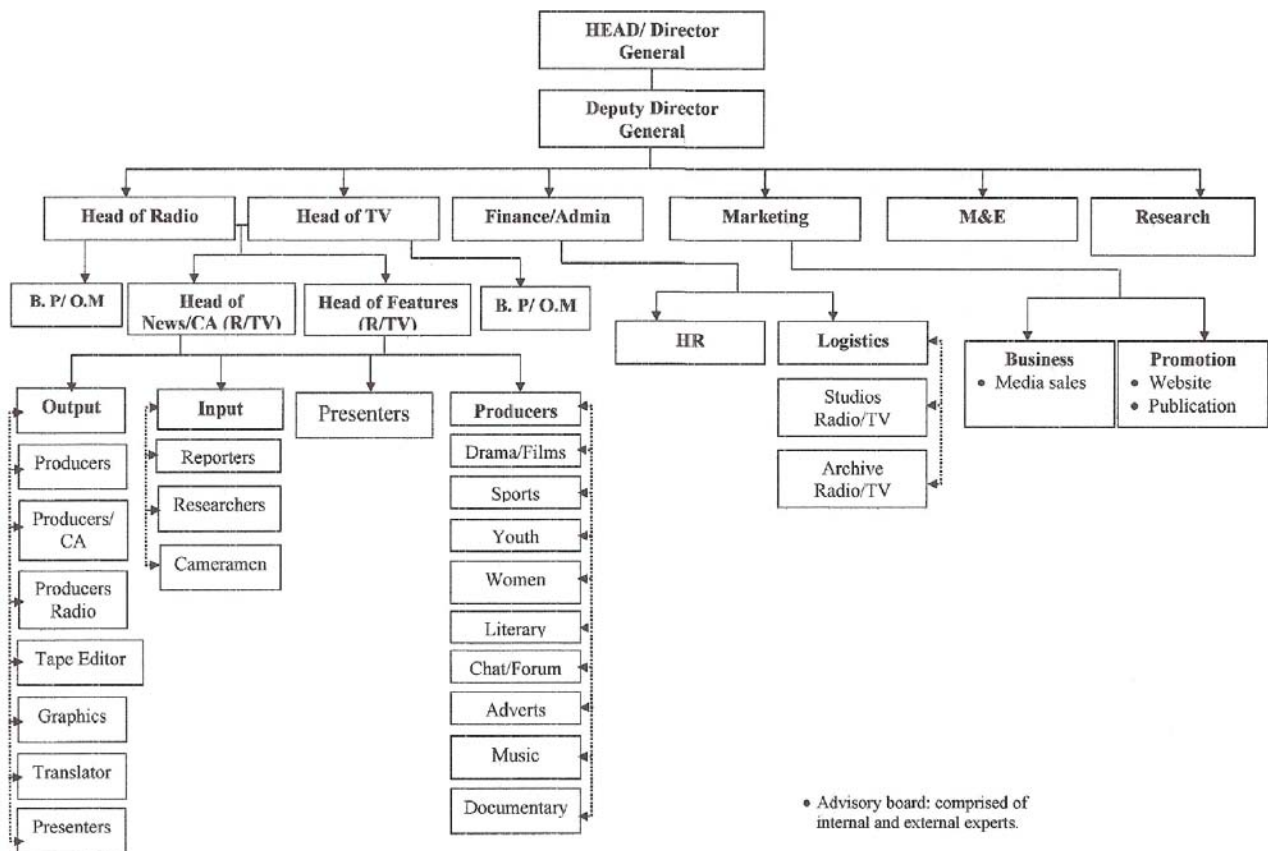
## Unbudgeted

Terrestrial Rebroadcast TV per station  
 \$18,000 + staffing and license  
 Terrestrial Rebroadcast for Radio per station  
 \$15,000 + staffing and license

### Radio Studios

Office Equipment: desks, chairs, printer,  
 copiers, scanners  
 Cars  
 Toyota 4WD x 4  
 People Carriers x 4  
 Petrol Per Month  
 Reuters and APTN subscription (awaiting quote)

Office and Studio Building Rent/Building Costs  
 Generators  
 Diesel per Month  
 Security



## Staff

### Administration

- Director General
- Deputy Director General
- Head of Finance + Administrator
- Head of Marketing + Administrator
- Head of TV
- Head of Human Resources
- Head of Logistics
- 4 General Duties Secretaries

### News Staff TV

- Head of News
- 6 Reporters
- 6 Producers
- 1 Researcher
- 4 Cameramen
- 4 Tape Editors
- 1 Graphics Designer
- 2 Translators
- 3 Presenters

### Control Room and Studio

- 3 Directors
- 2 Floor Mangers
- 3 Output Producers
- 2 text producers
- 2 sound mixers

### Newsnight Programme

- Editor
- 3 Producers
- 1 Researchers
- 1 Dedicated Reporter (other reports taken from news reporters)
- 1 Camera Crew

### Morning Programme

- Editor
- 3 producers
- 1 Researcher
- 2 Presenters

**Staff** (continued)

**Features Producers TV/Radio**

- Drama/Films
- 1 Sports
- 1 Youth/Childrens
- 1 Women
- 1 Education
- 1 Documentary
- 1 Chat/Forum
- 2 Adverts  
(may be formed into advertising production unit)
- 2 Music
- 2 Cameramen
- 1 Graphics Designers

**Library/Archive**

- 2 Library Researchers

**Logistics**

- 6 Drivers
- 6 Guards
- 4 Cleaners
- 2 Catering

**Consultants**

- Broadcast Producing Consultant
- Broadcast Engineering Consultant
- Radio Consultant

**TOTAL STAFF: 90 APPROX**

**Budget sub totals in £GB:**

Equipment costs plus transport and importation duties:	£1,200,000
Transponder costs @ £250,000 per year	£1,000,000
Staff and office running costs @ £750,000 per year	£3,000,000
<b>Total set-up and running costs for four years</b>	<b>£5,200,000</b>