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Hong Kong's 1998 Television policy review

Hong Kong’s 1998 Television Policy Review

Summary

I. The crossroads

Hong Kong stands at a communications crossroads, where convergence and divergence intersect. Its policy review papers on television and telecommunications suggest that while broadcasting needs liberalization, telecoms needs a managed market. Resolving the contradictions this raises will lie at the heart of all discussions on both reviews.

II. The review

Considers the issues that the review raises. In particular it notes the problems of introducing competition into a broadcasting market dominated by one terrestrial provider and in which other entrants have been heavily restricted up until now.

III. The broadcast industry

Examines the current state of the broadcast industry in Hong Kong, looking at the major players involved.

IV. Hong Kong as a broadcast hub

Notes that while Hong Kong has most of the factors needed to be a broadcasting hub for Asia, recently it has lost out to Singapore in this area. It points out that issues of quantity should not be confused with either quality or choice. It also notes that Hong Kong’s domestic film industry has deteriorated markedly in recent years, while its dominant broadcaster produces programmes in a language spoken only in pockets outside south China—important issues for those looking to boost local industry.

V. Policy-maker's checklist

Lists key questions that have to be resolved for the broadcast review to play the role intended for it.

VI. Appendices

1. Delivery platforms for television services in Asia Pacific

2. Broadcasters in Asia

3. Operational FSS satellites and DTH use in Asia Pacific

I. The crossroads

Hong Kong's information and communications industry policy-makers stand at the crossroads of convergence—a crossroads they have seen coming for some time. Despite some very shaky policy decisions, particularly on the broadcasting side, Hong Kong has managed to maintain a comparatively healthy media and a vibrant communications industry.

However, the policy-makers must now choose which path to take. Their main challenge is embracing a mindset that must encompass both:

* Convergence—the potential uniting of the means of conveyance.

and

* Divergence—the separate development and strengthening of different industry trajectories.

Convergence has been explicitly recognized by Hong Kong's policy-makers, not only by the establishment of an over-arching policy bureau for the industries affected with the formation of the Information Technology and Broadcasting Bureau in April this year, but by the joint release of television and telecommunications reviews in September this year.

Just as any documents designed to encourage discussion should do, these reviews raise more questions than they answer. Paradoxically, while convergence would suggest that the policy frameworks overseeing the industries would be coming together, the positions adopted in the text of the reviews can be interpreted as being diametrically opposed. For, while the television review raises the prospect of far-reaching liberalization, throwing regulatory restrictions to one side and making Hong Kong one of the most competitive markets in Asia, the telecommunications review raises the possibility of extending the moratorium on new licenses.

In other words, one review suggests the possibility of the government backing out of the market so as to achieve its objectives; the other suggests a sustained role of intervention for the government to achieve its objectives. This begs the question: if the industries are converging, what are the government's objectives? Given that these are review documents—designed to encourage discussion and participation—what does industry think those objectives should be?

This briefing identifies the government's objectives as stated in its *Review of Television Policy*, down which path those objectives are leading and what the costs and benefits of such choices may be.

The television review's central proposals

Television

- Open up pay TV and video-on-demand markets to competition. No limit on licenses.
- Allow Wharf Cable and other networks to provide telecommunications.
- Require Wharf Cable to open up network to other TV and telecommunications providers.
- Allow telephone licensees to convey and provide TV programs, including pay TV and video-on-demand.
- Mandate interconnection between telecommunications and broadcasting networks.
- Start trials of digital and high definition TV.
- Encourage broadcasters to apply digital technology.
- Abolish subscription and advertising royalties for TV and radio, costing the government $300 million.
- Revamp TV regulations.

Telecommunications

- Operators' investment plans to be studied before a decision on whether to issue more licenses.
- No limit on licenses to be issued next year for telecommunications services over facilities owned by others, or on licenses in 2000 for those providing the facilities.

II. The review

If implemented, the policy proposals contained in the television review will make Hong Kong the most liberal broadcast market in the Asia-Pacific region after New Zealand. Among the 35 proposals outlined, the plans envisage telecommunication companies providing television services; the end of Wharf Cable's pay television monopoly, to be replaced by an unlimited number of pay television licenses; householders accessing satellite-delivered pay television channels now denied to them, and a regulatory regime based on a channel's target audience rather than how it is delivered. Below several of the main policy proposals are considered, what their objectives and implications are.

According to the review, the government's long-standing policy on television broadcasting has been "to widen viewers' choice of quality programming, to ensure television programs meet the diverse needs of society and do not offend public taste and decency, and to enhance Hong Kong's position as a pre-eminent regional broadcasting hub." It also wants "to keep Hong Kong in the forefront of technological development in the Information Age ahead, [as] announced by the Chief Executive in his Policy Address."

This, however, is a strange motivation for a broadcast/television review. The world is entering the age of convergence. But, if it is the technology that is the objective in promoting change, then the industry links need to be thought through and addressed very carefully. It is not at all clear that a pro-competition policy for a service sector in a market as small as Hong Kong will lead to advanced technological development. It may well increase consumer choice and lower prices. But it does not automatically follow that technological development will ensue.

Convergence

Convergence is the coming together of telecommunications, computing, broadcasting and other industries which can deliver goods in a digital form. It can be seen in the way in which the multimedia market is changing. As the illustration below shows, what were once a series of vertically separate sectors are becoming vertically integrated while simultaneously converging horizontally.

With the traditional distinctions between telecommunications, broadcasting and computer networks becoming increasingly blurred, Hong Kong, as mentioned above, set up its Information Technology and Broadcasting Bureau (ITBB) in April 1998, so as to "make it possible for one single policy bureau to steer, co-ordinate and develop policies" for the converging information and communications industries. The government's role is "to provide an environment conducive to the flourishing of the communications and information industries, and in the process attract investment, speed up technology transfer, encourage innovation and ultimately bring the widest possible choice of quality services to the community."

Key policy objectives

The key policy objectives are outlined as "strategic" in the review. They are:

* To encourage and promote expansion, penetration and common use of the broadcasting and telecommunications networks and cross fertilization of the markets.

Comment: This therefore means universal inter-operability.

* To create a fair, flexible, pro-competition and technology-neutral regulatory environment that would encourage and stimulate investment, technology transfer, diversification and innovation.

Comment: This is two objectives which are often at odds with each other: pro-competition and diversification/innovation. Can both really be encompassed and achieved?

* To maximize consumer benefits in choice, service quality, affordability and accessibility.

Comment: Network economics and market economics are often at odds in the early stages of network development: low user prices can often translate into low investment returns.

* To facilitate the overall development of information technology and bring Hong Kong to the forefront of the "information age".

Comment: This could easily be interpreted as long-term industry policy, and not as laissez-faire non-intervention.

* To promote Hong Kong as a pre-eminent regional broadcasting, information technology and telecommunications hub.

This is commented in section IV below.

The breaking up of vertical integration

The regulatory framework discussed in the review focuses upon the social influence of different modes of broadcast, rather than upon different technologies or different ownership structures. Bringing to the fore another government objective—that of developing the content sector in Hong Kong—the review notes that: “An independent television production industry which supports a multi-channel environment in the television advanced countries is absent in Hong Kong. If the present situation where production, programming and transmission are vertically integrated in one single entity were to continue, the development and growth of the convergent industries would be impeded to the detriment of the programme producers, programme providers, facility service investors, artistes and viewers.” In the age of convergence, this is a step forward, but requires greater elaboration.

Meanwhile, with the opening up of the telecommunications and broadcasting networks to greater competition, the review goes to great lengths to stress that “the general fair trading rules should apply to all while more stringent rules should apply to the dominant operators.” Unfortunately, there is not a great deal of elaboration on what dominance is or how it could be defined. Take for example Hong Kong’s dominant Cantonese language television channel, Jade, run by its leading broadcasting company, Television Broadcasters Ltd (TVB). As one observer comments, “it appears likely that TVB Jade in 2008 might look very similar to TVB Jade in 1998”, despite the introduction of competition proposed in the review, because of the government’s intention to keep the free broadcast channels tightly regulated. Indeed, the factors that have maintained TVB’s dominance will continue to work in TVB’s favour as the Hong Kong market expands: TVB not only collects easily the biggest slice of the HK$3 billion a year in local TV advertising, it has a vast library of programs, which is increasing by 6,000 hours each year which it will be able to rent to other programmers.

Dominance

One of the key aspects of the review is how Wharf Cable’s broadband network will be opened to interconnection on commercial terms in the same way as Hongkong Telecom’s PSTN and broadband networks have to permit carrier and service provider equal access. The implication here is that dominance regulation in telecoms has been used effectively by OFTA to enforce its policy objectives in that all licenses carry anti-competitive behaviour clauses.

However, “dominance” remains an undefined term. At a time of deregulation—and concomitant reregulation—this ambiguity of interpretation is both a strength and weakness. Evidence of what might be meant, however, can be found in OFTA’s regulatory oversight. For example, Hong Kong Telephone Company’s (HKTC) services are regulated more strictly than Hong Kong’s other fixed networks because HKTC is classified as “dominant”—it controls so much of the market it can set prices and terms of service free of effective competition. Because of its dominant status, HKTC has special obligations to interconnect with its competitors and must submit its prices to OFTA for approval.

The government's strategy in the telecommunications sector therefore has been to liberalize the industry, regulate against anti-competitive behaviour by the dominant carrier and wait for the market to do the rest. But the prospect remains that the market will not be able to do the rest simply because it is too small. One possible interpretation of the two reviews is that convergence has emerged as a way to foster greater competition and investment in the local network by opening cable TV to telecoms and telecoms to TV.

With the economics of the broadcast sector facing similar difficulties, the broadcast review, as remarked on above, proposes to permit vertical integration between content providers and network operators. Proposing such a move is at the very least ironic. A few years ago vertical integration was seen to constitute an abuse of power and so to be regulated against.

The review also proposes the following four-tier regulation framework, with different degrees of regulatory oversight applied to each.

* Domestic free television programme services—heaviest content regulation and licensing to remain with the Chief Executive in Council because they "are the most pervasive and universally accessible and exert the greatest influence in society".

* Domestic pay television programme services—licensing to remain with the Chief Executive in Council and parental locking systems required, but given "that subscription is voluntary and is by choice, protection of minors and public morality is more the responsibility of parents than the Government".

* Non-domestic television programme services—licensing to be devolved to the Broadcasting Authority (BA) because "if these programmes do not primarily target Hong Kong, they are subject to much lighter control than free and pay television".

* Other licensable television services—licensing to be devolved to the Broadcasting Authority (BA) and parental locking systems required for these services which "cover small scale, niche or localized TV programme services targeting specific viewer groups" such as hotel guests, foreign nationals living or working in Hong Kong, small residential communities.

Finally, on ownership control, the government proposes simplifying restrictions. Only domestic free television licensees will continue to be subject to restriction on voting control by non-residents. At present, Broadcasting Authority approval is needed for every acquisition of a 2% voting share by a non-resident. The government also suggests removing program suppliers and companies transmitting sound and television material from the list of disqualified persons, who are banned from owning more than 15% of the voting shares of a television company.

III. The broadcast industry

Television licensees in Hong Kong

Licensees	Launch date	Households passed (mill.)	% households passed[1]	No. TV households (mill.)	% TV households
Terrestrial TV					
TVB	1967	1.9	99	1.9[2]	99
ATV	1973	1.9	99	1.9[2]	99
Subscription TV					
Wharf Cable	1993	1.6	79	0.4	21
Satellite TV					
HutchVision (STAR TV)	1991	N.A.	NA	0.5[3]	27
Galaxy	1998	NA	NA	NA	NA
Interactive multimedia service					
HKTVOD	1998	0.9	45	0.05	2.6

1. Number of domestic households in Hong Kong (excluding outlying islands and marine population): 1st quarter of 1998: 1,957,600 (Source: Census & Statistics Department). 2. Source: AC Nielsen 1997 Establishment Survey. 3. Based on the number of homes accessible to STAR TV's programs via SMATV systems at 31.5.98 (Source: Office of the Telecommunications Authority).

Hong Kong has two commercial television stations, Television Broadcasters Limited (TVB) and Asia Television Limited (ATV). Each provides one Chinese and one English language channel. On average they transmit more than 550 hours of programming weekly, covering almost all of Hong Kong's population of 6.5 million people, or approximately, 1.9 million households.

TVB comprehensively dominates the Hong Kong broadcast market, and any attempt to change the contours of the industry will be done so within this context. TVB has traditionally captured upwards of 80% of the broadcast advertising revenue, and advertising has traditionally made up more than 85% of television commercial revenues (see tables below). Over the last five years, however, ATV has steadily increased its share of viewers to about 25% of the market.

Commercial TV revenue by delivery system, 1995-2000

	1995	2000 (est.)	2005

			(est.)
Terrestrial analog free TV	87%	64%	50%
Terrestrial digital free TV	0%	0%	17%
SMATV-TVRO	1%	0%	0%
Wireless cable	10%	9%	5%
Wireline cable	2%	21%	22%
Direct-to-home satellite	0%	0%	0%
Terrestrial digital pay TV	0%	0%	0%
Telephone VOD	0%	4%	6%
Hong Kong commercial revenue	100%	100%	100%

Source: Salomon Smith Barney

Commercial TV revenue by source, 1995-2000

	1995	2000 (est.)	2005 (est.)
Advertising	87%	69%	70%
Basic service	13%	28%	24%
Premium service	0%	1%	2%
Viewing fees	0%	3%	4%
Hong Kong commercial revenue	100%	100%	100%

Source: Salomon Smith Barney

As with any dominance paradigm, however, regulations will be framed with the weak competitor (ATV) in mind—be they concessionary or not. There will also need to be a tilting of the playing field to encourage nascent competition from new services. The fact that dominance was not challenged previously underlies the current broadcast review as much as does the agenda of convergence.

Both Wharf Cable (cable television services) and STAR TV (satellite television services) have been subject to substantial restrictions. These restrictions, designed to safeguard the advertising revenues of TVB, resulted in a regulatory regime which caused many international media companies to look elsewhere for their base in Asia (see following section).

Wharf Cable, which began subscription TV services in October 1993, was originally restricted from selling ad time. (This restriction was lifted in July 1993.) It now offers 37 channels, including pay-per-view and near-video on demand. Wharf launched using a multipoint microwave distribution system (MMDS) for fast start-up and had passed 1.6 million households by May 1998. Wharf's license committed it to replace MMDS with a genuine cable system and, by June 1998, cable passed 600,000 homes, its target commitment to government. It and then promptly announced a halt to further buildout for “economic reasons”. This has left over half of Wharf Cable’s TV audience dependent on MMDS, which could become problematic as the government now wants to reclaim these microwave frequencies. Generally, Wharf Cable’s performance has not lived up to the early forecasts from the company. By summer 1998, it claimed around 400,000 connected subscribers who pay HK$200 per month for the basic service.

The other major player in the broadcast market is the video-on-demand service provided by IMS, a subsidiary of Hongkong Telecom. IMS represents an important strategic development in that it is the first of the new interactive television (iTV) systems, and thus it brings technological convergence to the commercial world. Its iTV was launched as the world’s first commercial VOD service at the beginning of 1998. So far the company has managed to attract approximately 50,000 subscribers and is witnessing churn rates of about 30-40%.

STAR TV, the first Hong Kong-based satellite TV licensee, started broadcasting in 1991. Like Wharf Cable, it has been subject to regulatory restrictions, notably on the uplinking and downlinking of signals. (This clashed with Hongkong Telecom’s exclusivity on international telecommunications services.) While these issues have largely been resolved, STAR was also restricted from broadcasting in Cantonese (subsequently permitted) or from carrying Hong Kong-focused advertising. Today the network transmits more than 45 programming services in seven languages and reaches more than 260 million viewers in 53 countries. It provides subscription and free-to-air services, with four free-to-air channels available in Hong Kong. It is available to around 550,000 households through 1,600 Satellite Master Antenna TeleVision systems.

Another 13 international satellite broadcasters use Hong Kong as a base to uplink their signals, including CNN International, TNT/Cartoon Network, Reuters Asia Ltd, China Entertainment Television Ltd and Chinese Television Network. However, many international media companies, including ESPN, the Disney Channel, the Discovery Channel, CNBC, and National Geographic, have relocated to Singapore, lured by tax incentives and a more lenient regulatory environment.

Quantity or quality?

In the past ten years, the number of television channels available in Hong Kong has increased ten-fold (from four to more than 40) following the introduction of satellite television in 1991 and subscription television in 1993. The number could multiply many more times in the near future. Four satellite frequencies could deliver six channels apiece to a 60-centimetre dish. That would provide 24 new channels. The introduction of digital TV will deliver at least 20 new channels—maybe more. With Wharf Cable forced to allow others access to its cable network and with the current telephone network providers all able to offer TV services as well, add another few tens of channels. And, for good measure, Macau is building a super-high TV tower to beam programmes to Hong Kong.

Lots of channels, but what about the content? Certainly, there will be great competition, but choice and quality are not always the same. To this end, other countries provide interesting examples. Twenty years ago in Britain there were three nationwide TV channels and the country was widely claimed to have the best quality TV in the world. The keen British TV viewer, according to Gren Manuel (*South China Morning Post*, 25th August 1998) now has 40 or 50 channels available, including Topless Darts, Tiffani's Big City Tips—a business news programme where Tiffani takes off an item of clothing after every statistic—and a weather report read in Norwegian by a girl in a bikini.

A content industry?

While the Hong Kong authorities are advocating vertical integration to improve the economics of the industry, in other countries governments have encouraged a new breed of independent production houses to provide quality TV programmes in competition with the big broadcasters. Britain's government, for example, forces broadcasters to buy in programs from outsiders to seed its new industry. In Canada, Australia, New Zealand and France, government takes a stake in program production and assists producers to find international buyers for quality programming. (In Britain, stations spend as much as US$3.5 million on an hour of high quality drama, an investment that they are able to recoup in sales to the vast English-speaking worldwide market.)

Hong Kong should be in a strong position. It is a major film producing centre and exporter. In 1997, it produced 90 films which earned 60% of their revenue from overseas (with Asia accounting for 70% of that share). But the film industry is nowhere near as strong as it was even five years ago, and its television industry suffers from producing in a language, Cantonese, which only fragments of markets beyond China's Guangdong province.

However, a glaring omission from the Review is that it makes absolutely no reference to the content side of broadcasting, or to the role of viewers' opinions, beyond its focus on regulation of content in terms of its social impact. As Joyce Nip Yee Man and John Ure have stated in their 'Quality Issues and Programme Diversity: A Response to the 1998 Review of Television Policy'

'The model of public service-dominated by broadcasting that used to prevail in Europe originated from a concern about content. By contrast, the Government's 1998 Review of Television Policy starts from a concern with industrial economics.'

Their paper elaborates on why a diversity of service providers is no guarantee of a diversity of programming, and therefore no guarantee of greater customer choice. In this regard another glaring absence in the Review is any reference to RTHK or to the role of public service broadcasting, or to any alternative means of promoting programme diversity and customer choice. As Eric Spain summarizes in his response to the Review 'Television Policy: Breadth of choice, affordability and social values'

'What are the values of our society, how should broadcasting reflect and cultivate them, how do we best pay for that cultivation? This is perhaps the most fundamental question that has yet to be addressed.'

IV. Hong Kong as a broadcast hub

Hubbing can be defined as acting as a transfer point for international information traffic from an operator in another country. Apart from such traffic-handling arrangements between operators, hubbing can also refer to the process of multinational companies basing their regional or global centres in a country, linked to headquarters or to their suboffices in the region through a variety of telecommunications devices. Hubbing for one industry such as broadcasting, not only has direct and important implications for the strength of the industry involved, it can have important ramifications for related industries. In the case of broadcast, this can include the media production, film, advertising, financial and information-service industries.

In general terms, Hong Kong rates well as a hub. It is one of the most advanced and productive media markets in the world. In terms of the carriage and delivery of content to the home, it certainly has one of the world's most advanced infrastructures, resulting from the focus that has been given over recent years to the telecommunications sector. It was the world's first city to have a fully digitized local telephone network. It was also the first place, as mentioned above, to experience the launch of a fully commercial interactive television system, including video-on-demand.

Hong Kong's IT market is one of the most developed in the region, though Hong Kong ranks third in East Asia (behind Japan and Singapore) in terms of per capita IT spending. In 1996, a manpower survey of the IT industry suggested that approximately 40,000 IT professionals were working in Hong Kong's 100,000 companies.

Despite these pluses, organizations such as the Cable and Satellite Broadcasting Association of Asia (CASBAA) have been vociferous in their criticism of Hong Kong's restrictive broadcasting policies, arguing that this has worked to Singapore's advantage as the rival regional broadcast hub.

Hong Kong versus Singapore

Hong Kong's vital statistics

Population	6 million
Gross National Product	US$142 billion
GNP per capita	US$23,650
Number of households	1.81 million
Teledensity	57.3%
Main telephone lines	3,435,312
International leased circuits capacity (Mbps)	382.0
Degree of liberalization	Liberalized in all except international services
Major telecom operators	Hongkong Telecommunications Ltd Hutchison Communications New T&T Hong Kong New World Telecom SmarTone Mobile Communications

Singapore's vital statistics

Population	2.92 million
Gross National Product	US$71.2 billion
GNP per capita	US$24,380
Number of households	751,000
Teledensity	49.6%
Main telephone lines	1,460,000

International leased circuits capacity (Mbps)	NA
Degree of liberalization	Opening up imminently
Major telecom operators	Singapore Telecom MobileOne (Asia)

In January, the Telecommunications Authority of Singapore (TAS) announced that 14 key "technology players" (including IBM, Microsoft, Hewlett-Packard, Oracle, Andersen Consulting and Electronic Arts) were to invest S$100million in the project which intended to be an island-wide broadband backbone operated by 1-Net Singapore, in which Singapore CableVision and Singapore Telecom each hold 30% and the rest are held by Singapore's two Internet providers and TAS.

Hong Kong, by contrast, may be a major center for multinational companies (according to Hongkong Telecom, some 3,500 international companies have a network presence in Hong Kong; more than 500 of those companies have their telecommunications hub located in Hong Kong), but it does not seek to encourage their presence and participation with the same activeness of Singapore.

Freeing up pay TV would speed up technology transfer, attract investment and stimulate the growth of related industries, which in turn could strengthen Hong Kong's claim to want to be a leading regional broadcasting hub in the region. However, opening Hong Kong's broadcast market to competition of this kind would also seriously threaten a lot of entrenched interests, particularly at TVB and Wharf Cable. As ever, the headache facing Hong Kong's policy-makers will be how to choose a path that best guarantees success, whether that is embracing convergence and competition or divergence with strict barriers between separate sectors within the broadcasting and telecommunications industries.

V. Policy-maker's checklist

IDENTIFYING THE OBJECTIVES: ISSUES OF DEVELOPMENT AND REGULATION FOR CONSIDERATION

As has been illustrated through this paper, certain development objectives will be mutually incompatible—at least in the short-term. What this means is that, where specific objectives are to be met, choices need to be made. But, as was pointed out at the beginning of this briefing, the chance to make choice is something to be grasped proactively, not shied away from. Below is a checklist of some of the choices and questions which emerge from the Broadcast Review documents and face policy-makers.

Convergence

Technical

* Is Hong Kong's primary focus to be network or content?
* How many networks are wanted? (Network economics and market economics do not necessarily converge at the same time.)
* Is Hong Kong looking to promote facilities-based competition or services-based competition?

Business

* Who is Hong Kong looking to promote? "National" champions or start-ups?
* Market opportunity or market consolidation?
* Foreigners or locals?

Economic

* Where will economic growth and development come from?
* Which industry fundamentals are being targeted?
* Higher revenues or lower consumer prices?
* Quality or quantity?

Regulatory

* Competition or strategic development?
* Information networks or information? (Networks or content?)
* Will Hong Kong be looking to promote open systems and interfaces?
* What are the benchmarks for regulatory restrictions to be eased?

Industry development

* What should Hong Kong's long-term positioning be—NII-focus or pro-competitive?
* Will the primary focus be economic or technological development?

Hong Kong as a media hub

* What kind of players is Hong Kong trying to attract? What would these players want?
* What is to be offered: tax breaks, competitive facilities, ease of business set-up, a welcoming administration?
* Will Hong Kong look to be offering broadly based economic development (i.e. agglomeration economies) or be an information-traffic hub?
* Will the focus be on China or Asia?

Related industries

* Which industries need to be strong for the broadcast industry to develop—production, post-production, advertising...?
* What impact will vertical integration have on the content and the content production industries in Hong Kong?

Content Issues

* If quality and customer choice imply programme diversity, how can government help bring it about?
* What is the future role for public service broadcasting or community programming?
* What role will broadcasting and other forms of television play in the cultural development of Hong Kong? How can the community best express its concerns and points of view?

Appendix 1

Delivery Platforms for Television Services employed in Asia Pacific Countries

	Terrestrial		Cable		Satellite	
	Analogue	Digital	Wireless/ MMDS	Wireline Cable/ Hybrid fiber-coaxial	SMATV C-band	DTH Ku-band
Australia	✓	2000	✓	✓	✓	✓
China	✓		✗	✓	✓	✗
Hong Kong	✓		✓	✓	✓	✗
India	✓	After 2005	✗	✓	✓	✓
Indonesia	✓		✗	✗	✓	✓
Japan	✓	2000	✗	✓	✓	✓
Korea	✓	2000	✗	✓	✗	✗
Malaysia	✓	2003	✓	✓		✓
New Zealand	✓	2000	✓	✓		✓
Philippines	✓		✗	✓	✓	✗
Singapore	✓	2000	✗	✓	✗	✗
Taiwan	✓	2001	✗	✓	✓	✗
Thailand	✓	2003	✓	✓		✓

Source: Kaushik Shridharani, *Asia-Pacific Television: The Big Picture*, SalomonSmithBarney, January 1998

Appendix 2

Broadcasters in Asia Pacific

	Terrestrial	Cable		Satellite	
	Analogue	Wireless/MMDS	Wireline/Hybrid fiber-coaxial	SMATV C-band	DTH Ku-band
Australia	Network Ten Nine Network Seven Network Australian Broadcasting Corporation Special Broadcasting Service Corporation	Australis Media's Galaxy Service	Optus Vision (HFC) Foxtel (HFC) Austar		Australis Media's Galaxy Service
China	China Central Television (CCTV) w/ 4 pay TV channels			STAR TV China Entertainment Television	
Hong Kong	TVB ATV	Wharf Cable (HFC)	Wharf Cable (HFC)	STAR TV	

	Terrestrial	Cable		Satellite	
	Analogue	Wireless/MMDS	Wireline/Hybrid fiber-coaxial	SMATV C-band	DTH Ku-band
India	Doordarshan		Doordarshan Business India Television (BiTV) Asian Television Network (ATN) Joint America Indian Network (JAIN TV) In CableNet India InfoTechnology UCN Space Vision Siti Cable	STAR TV	Doordarshan Indian Sky Broadcasting (ISKyB) VSNL (permitted)

Indonesia	TVRI RCTI SCTI IVM TPI ANTeve				Indovision (Digital DTH service by PT Datakom)
Japan	Nippon TV TBS Fuji Television Asahi Television NHK TV Tokyo Tokyo Metropolitan TV		Tokyo CATV Jupiter (Tel co) Titus (Tel co)		NHK DirecTV (Digital) PerfecTV (Digital) Wowow Sky Port
Korea	Korea Broadcasting System (KBS) Munhwa Broadcasting Corporation (MBC) Educational Broadcasting Service (EBS) Armed Forces Korea Network (AFKN)		Korea Telecom (HFC) Korea Electric Power (HFC)		
Malaysia	Sistem Televisyen Malaysia Berhad Radio Television Malaysia Metro Vision Medan Mas National TV	Mega TV	MBNS		MEASAT Broadcast Network System’s Astro Service (MBNS - Digital)

New Zealand	TV New Zealand TV3 and TV4	Sky TV (UHF)	Saturn Communications		Sky TV
Singapore	Television Corporation of Singapore (TCS) Singapore Television Twelve (STV12)	Singapore Cablevision (SCV)	Singapore Cablevision (SCV)		
Philippines	ABS-CBN GMA Island Broadcasting Corporation Associated Broadcasting Corp EI Shaddai People’s Television Network Radio Philippines Network		Sky Cable Sun Cable Home Cable Cavite Cable	STAR TV	
Taiwan	Taiwan Television (TTV) Chinese Television Company (CTV) Chinese Television System (CTS) People’s Broadcasting Corporation		TVBS	STAR TV	

Thailand	Royal Thai Army Government's Public Relations Department Mass Communications Organization of Thailand (MCOT) Independent Television	International Broadcasting Corporation	UTV Cable Network		International Broadcasting Corporation

Source: Kaushik Shridharani, *Asia-Pacific Television: The Big Picture*, SalomonSmithBarney, January 1998

Appendix 3

Operational FSS Satellites and DTH Use in the Asia-Pacific

Orbit Position	Satellite Name	Resp. Administration	Band
26	Arabsat 2A	AL	22C/12Ku
30.5	Arabsat 2B	AL	22C/12Ku
31.3	Turksat 1B	TUR	16Ku
40	Statsionar 12 (Gorizont 31)	RUS	6C/1Ku
42	Turksat 1C	TUR	16Ku
45	Statsionar 9	RUS	10C
47	Intelsat 507	IS	13C/6Ku
49	Statsionar 24	RUS	10C
53	Statsionar 5 (Gorizont 27)	RUS	6C/1Ku
55	Insat 2DT	IND	25C
57	Intelsat 703	IS	20C/10Ku
60	Intelsat 604	IS	22C/6Ku
62	Intelsat 602	IS	22C/12Ku
64	Intelsat 804	IS	28C/5Ku
66	Intelsat 704	IS	20C/10Ku
68.5	PAS 4	USA	16C/28Ku
70	Statsionar 20	RUS	6C
72	Intelsat 505	15	13C/6Ku
74	Insat 2A	IND	18C
76.5	Apstar 2R	MLA	28C/16Ku
78.5	Thaicom 2	THA	10C/2Ku

Orbit Position	Satellite Name	Resp. Administration	Band
78.5	Thaicom 3	THA	25C/14Ku

80	Statsionar 13 (Express 6)	RUS	12C/2Ku
83	Insat 1D	IND	36C
85	Statsionar 3 (Raduga 30)	RUS	10C
90	Statsionar 6 (Gorizont 28)	RUS	6C/1Ku
91.5	Measat 1	MLA	12C/6Ku
93.5	Insat 2C	IND	18C/3Ku
93.5	Insat 2B	IND	18C
96.5	Statsionar 14 (Gorizont 19)	RUS	6C/2Ku
98	DFH 2A (Chinasat 2)	CHN	
100.5	Asiasat 2	CHN (HK)	24C/9Ku
103	Statsionar 21 (Gorizont 25)	RUS	6C/1Ku
105.5	Asiasat 1	CHN (HK)	24C
108	Palapa B2R	INS	24C
110.5	Chinasat 2	CHN	
113	Palapa C2	INS	30C/6Ku
116	Koreasat 1	KOR	12Ku
116	Koreasat 2	KOR	12Ku
118	Palapa B4	INS	24C
120	Thaicom 1	THA	10C/2Ku
122	Asiasat G (Gorizont)	CHN (HK)	6C/1Ku
124	JC Sat 4	J	12C/28Ku

125	DFH 3A (Chinasat 6)	CHN	24C
128	JC Sat 3	J	12C/28Ku
128	Statsionar 15	RUS	10C
130	Gorizont R1	RUS	6C/1Ku
132	N-Star A	J	6C/8Ku
134	Apstar 1A	CHN (HK)	24C
136	N-Star B	J	6C/8Ku
138	Apstar 1	CHN (HK)	24C
140	Statsionar 7 (Gorizont 22)	RUS	6C/1Ku
142.5	Statsionar 42 (Gorizont R2)	RUS	6C/1Ku
144	Superbird C	J	24Ku
145	Statsionar 16 (Gorizont 21)	RUS	6C/1Ku
146	Agila 2	PHL	30C/24Ku
148	Measat 2	MLA	6C/9Ku
150	JC Sat 5	J	32Ku
150.5	Palapa C1	INS	10C
152	Optus A3	AUS	15Ku
154	JC Sat 2	J	32 Ku
156	Optus B3	AUS	16 Ku
157	Intelsat 511	ISIS	13C/6Ku
158	Superbird A	J	19 Ku
160	Optus B1	AUS	16 Ku
161.5	Agila 1 (former Gorizont)	PHL	10C/1Ku

162	Superbird B	J	19 Ku
169	PAS 2	USA	16C/16Ku
174	Intelsat 802	IS	28C/6Ku
177	Intelsat 702	IS	21C/10Ku
180	Intelsat 701	IS	21C/10Ku
183	Intelsat 513	IS	13C/6Ku
185.7	TDRS F5	USA	12C

Source: Edward E.Reinhart 'Satellite Broadcasting in the Pacific Hemisphere', *Pacific Telecommunications Review*, June 1998