

**CAMBODIA:
NETWORKS, SERVICES
and
REGULATORY REFORM**



Friday 7th December 2001

Seminar: 12:30 – 1:30 p.m.

Venue: Reading Room, Centre of Asian Studies, Tang Chi Ngong
Building, University of Hong Kong

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MYSTIQUE

1. The telecommunications sector used to suffer from the belief that only engineers could understand it. This insulated the sector from public scrutiny of its performance. Last Month I led a study tour for some Cambodian telecommunications officials through Malaysia, Singapore, Thailand and Hong Kong. Judging by the flood of acronyms that were tossed at us: MMCC, MECM, SIRIM QAS, IDA, FBOs, SBOs, TOT, CAT, PTD, ASAT, PCCW, OFTA, FTNS and PNETS, to name but a few, we are managing to build back some of the lost mystique! It is with this caution in mind that I will describe our efforts and ideas to help strengthen the regulatory structures in Cambodia.

BACCKGROUND

2. In 1984 I became a minister in the Labour Government, elected primarily because New Zealanders wanted a break from a government drunk with its power to regulate virtually every aspect of the country's economy. In 1988, as a former labour economist and union official, I found myself the Minister responsible for recommending regulatory regimes, including one for electricity.
3. A visit to the United States, with its five or six layers of regulation all pulling in different directions, persuaded me that there had to be a better way of doing things¹. Our Treasury (Finance Ministry) and our Trade and Industry Department agreed among themselves that the way forward was to privatise electricity as a vertically integrated monopoly and use only general competition law provisions to regulate.
4. I disagreed. I could not see how anyone would ever invest in generation if their competitor owned the transmission they needed to reach their customers. The Ministry of Energy supported me and fortunately, my colleagues agreed with us. Thanks to this rearguard action and that of my successors, the electricity transmission system was taken out of the utility and remains an independent, state owned common carrier.
5. With further legislation, in 1998, the distribution of electricity is by dedicated wires companies, both private and publicly owned. With an absolute minimum of regulatory intervention, customers can purchase electricity on an open market and consumers now have access to as many as six electricity suppliers over the same set of wires².

¹ The layers included Laws (Congress), FERC, Energy Department, State Regulatory Ordinances, State Utilities Commissioners and local government.

² The seemingly insuperable regulatory problem of switching customers from one company to another was resolved when the then Minister gave the industry six months to come up with a cost effective method he could implement, or he would do it himself. They did it and he implemented it, with a minimum of regulatory intervention.

6. Electricity had aroused my interest in structural issues. In 1988, when the Minister of Communications came up with the idea of deregulating telecommunications I was relaxed about his idea of minimal regulation. It was obvious, even then, mobile phones would eventually provide competition for fixed line telephones. Our attitude was that before rushing into regulations, we should wait awhile and see what happens. Just to be sure, we put out a discussion document asking for comments on what we proposed and no serious opposition eventuated.
7. The most important lesson learned was that the officials responsible for devising and implementing regulations were among the people most sceptical about their ability to do it effectively. This has encouraged me to approach regulatory issues with a few simple ideas in the back of my mind:
- any regulatory regime should be based on the assumptions that competition will remain the prime regulator of the economy and sector,
 - aligning the incentives faced by the regulated party with the policy objectives of the regulatory regime, will produce the best results,
 - the principal purpose of network regulation is to prevent the operator of a network, with the capacity to earn monopoly rents, from using them to undermine competition in a complementary competitive market,
 - the test applied to any regulatory proposals should be, is there any need to regulate at all, and if there is, has the most efficient measure been selected to achieve the stated objective
8. It has always seemed to me to be incongruous, to turn up in a country in transition from central planning and say what you need is a regulator! How is a person in a transition economy supposed to distinguish a regulator on the one hand from the central planner on the other? One consultant was heard to say:
- “We need a detailed telecom law, a new regulatory body, comprehensive licenses, reporting to the regulatory body on financial results and cost accounting by service, mandatory standards and mandatory type approval. All this deregulation is new and required for competition.”³
9. I am also of the view that if regulators are given too many, or poorly defined tasks they are in the position of having “multiple tasks and multiple excuses.”⁴ When my company and some associates were chosen to offer advice to the authorities in

³ Quoted in *Handbook on Competitive Activities*, page 27, Arno Wirzenius, Asia-Pacific Telecommunity, October 1994,

⁴ Hon Dr Michael Cullen, Minister of Finance of New Zealand, rejecting the argument that Central Banks should be responsible for full employment as well as price stability.

Cambodia on telecommunications regulation, our approach was based on clear, limited, objectives and reliance on competition.

CAMBODIA

10. What does this mean in Cambodia? Our assignment was to help strengthen the telecommunications regulatory regime. Our task was focused on fair competition rules, the interconnection regime and rate rebalancing. We began by looking at what was there already and the society in which we were working⁵. Cambodia is very different place New Zealand and Hong Kong.

- it is one of the poorest countries in the world.
- it has been raped by a murderous regime and wasted by a long civil war:
- its infrastructure was destroyed by the Khmer Rouge and civil war,
- the intelligentsia of the country was destroyed including the majority of its legal, economic and engineering expertise,
- the surviving bureaucracy is ludicrously badly paid, and as a result,
- increasing its administrative capacity could have the impact of increasing its ability to rent seek
- there is no competition law and even if there was the judiciary do not have the expertise to implement it.

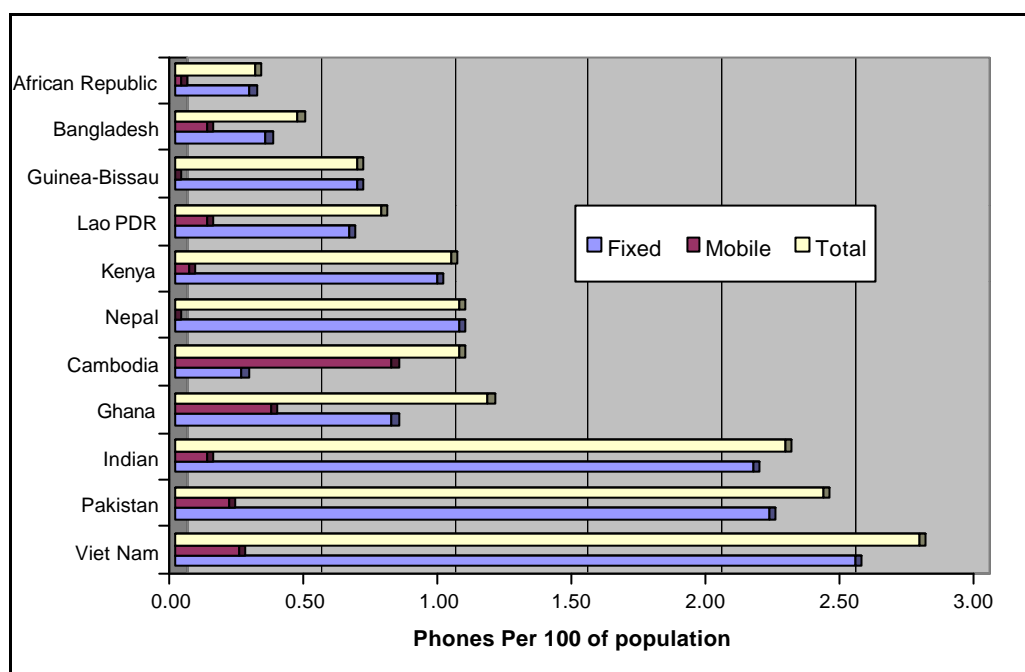
11. Cambodia desperately needs to develop. Communications are an essential development tool. Therefore, from a strategic perspective for Cambodia, two fundamental objectives must be included in a telecommunications regulatory policy. The policy must encourage:

- extending the access to telecommunications, as a development tool,
- the real cost of telecommunications should be as low as possible, to facilitate the development of businesses to increase wealth and employ Cambodians

⁵ John Third from Guinness Gallagher was an appropriate colleague for this assignment. Not is he trained in agricultural economics but in an earlier task, strategy manager for the NZ Coal Corporation, in one year he and his team engineered a turnaround from a NZ\$ 100 million loss to a NZ\$ 4 million profit in a single year. This was at the same time as they reduced the cost of coal from NZ\$ 100 to NZ\$ 60 a tonne.

12. It seems to us that all other issues are subordinate to these two important objectives⁶. Our first task was to find out if the Cambodians shared our view of the purpose of regulating the telecommunications sector? Our starting point was a series of speeches by the Prime Minister, Hun Sen⁷. These seemed to suggest that we were on the right track. Subsequent comments from our counterparts suggested that the people who work in the telecommunications sector also believe that, in this respect at least, we are on the right track. The speeches also confirmed that the government accepts that the in future competition will be the prime regulator of economic activity.

Figure 1
Telephone Penetration in Selected Countries



Source: ITU Database 1999 / ITU mission to Cambodia

FINDINGS

13. Cambodia's telecommunications sector is unique in that it has an average telephone presentation for countries with similar income levels⁸, but very high proportion of mobile phones, indeed the country with the highest share of the total in the World, now more than 90 percent⁹. This makes its regulatory needs quite different to most other systems. In most jurisdictions the main task is to strengthen mobile services to compete with strong fixed services. Cambodia needs to strengthen the fixed services to compete with the strong mobile. In most jurisdictions the policy effort is focused on strengthening the entrants to be able to compete with the strong incumbent. In

⁶ Although many other countries have other policy objectives, when stripped of their rhetoric they amount to much the same as these two.

⁷ Private Sector Forum Report, 1999 and 2000.

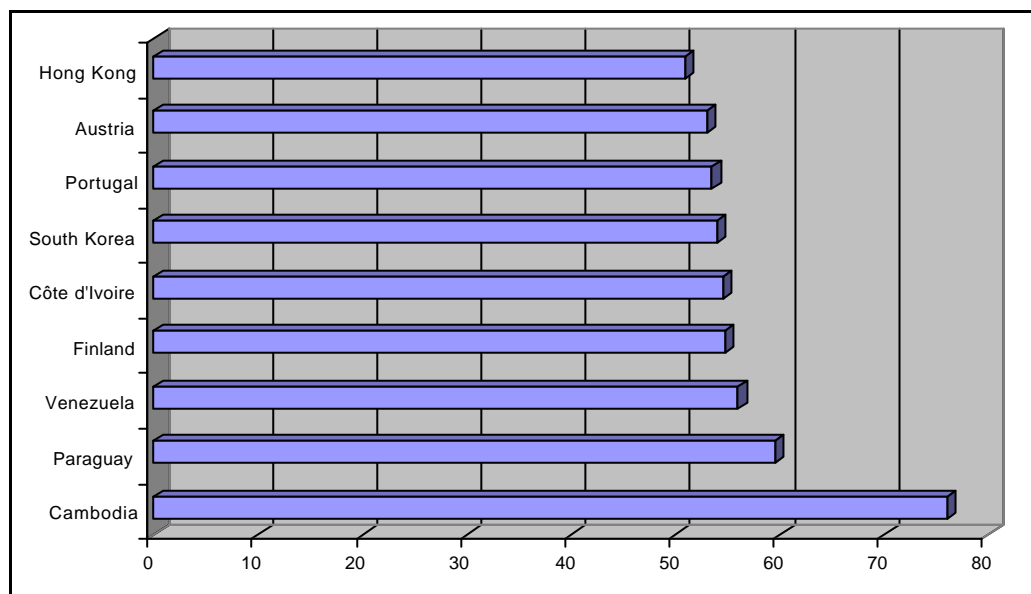
⁸ See Figure 1

⁹ See Figure 2

Cambodia, an effort has to be made to strengthen the previous incumbent to compete with strong entrants.

14. The growth of mobile services is only one of many achievements of the telecommunications sector. Cambodia has:
- a mobile phone system that is close to world class quality, competitive and privately provided.
 - a relatively modern fixed line infrastructure, virtually all put in place since 1990,
 - it has a high quality, backbone fibre optic cable system (donated by the German government),
 - there is private sector investment in mobiles, wireless networks, Internet and gateways.

Figure 2
Mobile as a Percent of All Phones - Leading Countries



Source: ITU Database 1999 / ITU mission to Cambodia

15. Although Cambodia has many achievements in telecommunications, some problems remain to be addressed:
- the fixed line system has limited penetration and high unit costs,
 - there are too few connections to cover fixed network costs,
 - Fibre Optic Cable downtime is unacceptable by any standards (12 percent),

- there are several mobile networks, and long-term this can be a relatively expensive communication mode,
 - there is danger of a dominant player emerging,
 - the interconnection regime then in place was illogical and unfair
16. One important reason for these problems is that the Ministry of Posts and Telecommunications (MPTC or “the Ministry”) is an integrated, policy, regulatory, operational and asset management agency. All consultants who have looked at it agree that that this has led to conflicts of interest, poor asset management, business decisions suffering from political intervention and political priorities suffering from a preoccupation with business issues.
17. A gross example is the international gateway. MPTC is a substantial owner of Gateway One. Because Gateway One now faces competition, it is losing customers and revenue. The priorities of the Ministry are being distorted by the need to try and keep up its market share. The Gateway is a relatively minor issue in a sector worth more than US\$ 100 million but its fate preoccupies much official time. On the other hand, the business is crippled by the unsuitable public service administrative structures being used to run a business.
18. All recent advisers have made the same recommendation. The Ministry should have its current functions located in separate agencies:
- policy – is the correct function for MPTC,
 - regulation – should be an independent function,
 - business operations – should be grouped in State Owned Enterprises called Telecom Cambodia and Cambodia Post, commercial entities with operational autonomy, eventually to be sold to the private sector¹⁰,
 - ownership interests in some residual joint ventures between MPTC and other parties should be held by the Ministry of Finance.
19. This restructuring will address conflicts of interest and give fixed line business the chance to develop. Our financial modelling suggests that if the fixed line business is reorganised and has a minimum of organisational autonomy and development capital it

¹⁰ For anyone who still believes that government ownership is a good idea John Third of Guinness Gallagher, also has some practical advice: “the government is always a rotten shareholder: it has a vision of about 18 months, being constrained by the distance to the next election, it is rapacious for dividends, niggardly with new capital, and always wants to second guess management and influence their decisions on behalf of their constituents.” Quoted at UNDP Seminar, Stockholm 1994

could both expand very rapidly and become a highly profitable business, even if it pays proper salaries to its staff.

20. Some consultants have essentially drawn a breath at this point and said that the key policy objective is to form the regulatory agency¹¹. This is a mistake. The formation of a regulatory agency is a means of implementing a policy. Policy decisions relate to what the regulatory approach will be, what will be the mandate of a regulatory agency and how it will be exercised and monitored.

FORMS OF REGULATION

21. What is a suitable regulatory regime for a currently mixed private and state telecommunications sector, in transition to privatisation? The OECD has recently addressed the issue of how to regulate former utility industries¹². One recommendation reads as follows:

“..policy approaches can be broadly grouped into two categories – those that primarily address the incentives on the incumbent to restrict competition (“structural”) approaches, and those that primarily control the ability of the incumbent to restrict competition (“behavioural” approaches). Under behavioural approaches, the regulator must struggle against the incentives of the incumbent to deny, delay or restrict access. Compared to the incumbent firm the regulator is usually at a disadvantage with respect to information and to the possible instruments of control. As a result, the level of competition under behavioural approaches is less than if the incumbent did not have the incentive to restrict competition [the outcome of structural separation].”

22. At about the same time as this report was being published we were arguing along similar lines. Traditionally telephone companies were regarded as “natural monopolies” using a network too expensive to reproduce. Very often they were made legal monopolies as well. This legal monopoly extended to a vast range of ancillary activities only marginally related to the core network¹³.
23. Today these industries are more normally referred to as “network” industries. This name emphasises the network facilities are the potentially monopoly element as they are expensive to reproduce. This also suggests that even if only one backbone can be constructed, competition is still possible in wholesale (exchange) and retail functions.

¹¹ e.g. *Report on the Restructuring of the Ministry of Posts and Telecommunications*, CMB / 407072. 8203, ITU Bangkok

¹² *Structural Separation in Regulated Industries*, OECD Directorate for Financial, Fiscal and Enterprise Affairs, 10 April 2001.

¹³ In the old New Zealand Post Office, a broken window in the Timaru Post Office had to be repaired by a Post Office employee. This necessitated a repairman coming from the Christchurch Depot, more than 160 km away at a cost of close to NZ\$ 500! A local contractor would do the job for NZ\$ 50!

Similar, analysis can be applied to other networks include: electricity, banking, roads, railways, airlines and postal services.

24. Historically, networks have been barriers to competition. We looked at telecommunications again to see if there is potential to make the network instead, the platform for competition. In paragraph 4 above, I have described how this problem was resolved in the electricity sector. We looked to see if there was a structural parallel in telecommunications.
25. Our conclusion was that there is a close parallel. The first column in Figure 3 describes the components of a traditional telecommunications network. If you substitute the word “Transmission” for “Trunk Connection” and “Generation” for “Exchange,” you have an almost exact parallel with the electricity sector regime described in paragraph 6. The electricity regime described there was set up to maximise consumer choice, minimise the need for infrastructure and to minimise the need for regulatory intervention. This last aspect in particular encouraged us to look and see if there were lessons here for Cambodia and other countries as well.

Figure 3
Risk/Reward Based Service Divergence

	Local Call	Long Distance	Inter-national	Fast Data	Mobile	Internet	Voice over Internet	
Retail and Billing						New Products and Services		
Local Distribution						Broad Band Data Transmission		
Trunk Connections								
Data Exchange								
	Network				Services			

Source Guinness Gallagher Consultants, Wellington

26. Most regulatory debate has focused on the vertical integration of the basic telephony. What if the sector is looked at across services and technologies? Where the current services are in the same organisation, they use a common network. When they are in different organisation, they interconnect. However, the only pieces that physically interconnect are the networks. What if regulatory interest is focused on these and services are left to compete? We were encouraged to proceed further by the fact that, OFTEL in the UK, and other regulatory authorities have essentially stopped regulating services and are focusing on the true costs of providing infrastructure.

27. The picture we gained was that if Cambodia were to adopt a policy of encouraging the separation of all kinds of communications wires¹⁴ and services and preventing cross ownership of networks and services there would be a number of regulatory advantages:
- all service companies would be in the same boat, leasing space from an unaffiliated network companies, on which to operate their “software”,
 - this would drastically reduce the cost of market entry, encouraging a large number of specialised service companies to enter the market,
 - even if no more network companies were formed (and in Cambodia three interconnected companies currently have networks with nation-wide aspirations) there would be competition between them,
 - interconnection costs would be more easily discovered and monitored as they would related only to “hardware” costs, and these are widely known,
 - this regulatory simplification would be highly beneficial to Cambodia, given its limited administrative capacity and immature legal system,
 - without cross ownership, anti-competitive mergers and acquisitions would not be a problem, in any case, the incentive facing every network would be to maximise utilisation, irrespective of the source of the signal,
 - networks would have an incentive to expand coverage; to be the first company in each new site and population centre, thereby gaining all available traffic,
 - however, there would be a low incentive to overbuild (a characteristic of competition where networks and services are bundled¹⁵).
28. In Cambodia most of the fixed network assets remain in the state sector. The private mobile companies have their own networks but do some facilities sharing and also lease some space on the ministry controlled fibre optic network. This means that if the government of Cambodia were to adopt a policy of moving to a structural separation of networks and services, it would be a relatively simple process to rearrange the assets it controls and begin the move to separation.
29. This analysis demonstrates that there are regulatory advantages in moving a natural monopoly into its competitive and monopoly components. However, a major policy

¹⁴ i.e. blind to technology, whatever carries the signal, be it copper, microwave, radio laser etc

¹⁵ In the limiting case, if all three companies in Cambodia overbuild and put in place sufficient capacity for all current traffic, three times the necessary capital is invested and nine times the necessary capacity is created.

initiative cannot be justified on regulatory grounds alone. Is there a business case pointing in the same direction?

BUSINESS CASE

30. Figure 3 shows that no matter what service has been added to telecommunications and data transmission networks, essentially the same structure is used. All that has happened over time is that more and more technologies have been grafted onto the same matrix. Nevertheless, how stable is this matrix? Several straws in the wind suggest that it is increasingly unstable:
- specialised service companies, e.g. Vodafone and Orange, do better in the market place than service companies which are part of larger conglomerate,
 - when conflicts arise inside conglomerates, the best that can be hoped for is a compromise, the worst that can be anticipated is a disaster,
 - when the decision was taken to break up AT&T the need to avoid compromises was one of the major factors¹⁶,
 - other companies are going the same way as AT&T, recently BT has announced a similar restructuring,
 - even companies which remain bundled recognise the need to wholesale excess data transmission capacity and to isolate this from other parts of their business¹⁷,
 - specialised network only companies are emerging to offer services to all comers in the telecommunications market¹⁸.
31. Telecommunications networks and telecommunications services are completely different business. They are also different kinds of investments. A network investment has a long product life, a low level of complexity, little harm will be done if its technical information is made public, its risk is low, its return is relatively low and it is a suitable investment for a risk adverse investor, such as a pension fund.

¹⁶ “Crucially, AT&T’s growth businesses will now have focused managements whose performance can be measured against other, similar companies. No longer will they have their strategies determined by ponderous committees at head office in Basking Ridge, New Jersey. If they do deals with other AT&T companies, it will be on arm’s-length terms decided by market forces. This should help the companies to attract the best executives, unencumbered by the fading long-distance business, and to create a more valuable currency than AT&T’s old paper to fund investment and acquisitions.” *The Economist* October 28 2000, Page 64.

¹⁷ PCCW, Hong Kong, is an example of a company with a large wholesaling business.

¹⁸ E.g. Broadcast Communications Ltd, a New Zealand SOE, MTT Network (Private) Limited in Sri Lanka and in Pakistan a company with a Cambodian connection is going the same way.

32. A service investment, by contrast, has a relatively short product life. It may have a high level of complexity, and will be harmed if technical information is made public. Service businesses are risky and need high rates of return to compensate for that risk. In short, they investments that suit high reward venture capital fund type investors. This contrast is highlighted in Table 1. The article quoted in paragraph 30 above goes on to predicts the end of the vertically integrated model:

“The vertically integrated model of telecom that dominated the past decade is collapsing and being replaced by a model in which specialist companies, from Vodafone and Global Crossing to Cable & Wireless, compete horizontally, within their own fields of expertise. The next big telecom company to go the way of AT&T seems certain to be BT and others faced with similar pressures will follow. Do not be surprised if even WorldCom starts to shed some of the parts so dashingly thrown together by Mr Ebbers in recent years. Chances are, Ma Bell will soon find herself in fine company¹⁹.”

Table 1
Business Profiles Network and Service Companies

	Network Company	Service Company
Risk	Low	high
Return	Low	high
Product Life	Long	short
Complexity	Low	high
Information	Public	private
Investor	Risk adverse pension fund	High reward venture capital fund

Source: Guinness Gallagher Consultants

33. The article is saying that commercial factors are driving telecommunications companies to separate their current service businesses from their basic networks. The focused company is consistently beating the conglomerate in the market place. However, the focused company described by the author, may contract with its old parent for data transmission services, have its own proprietary network or seek network access elsewhere. To date most chose to have their own. This is an expensive choice.
34. For a service provider the issue is, guaranteed access to a network, not the ownership of that network. Ownership is a very high cost for control of access. We think that AT&T are right in their belief that the separation and specialised management focus

¹⁹ Op. Cit.

on running these two opposite business types is likely, of itself, to release significant value. This value is being suppressed by the compromises inherent in the current bundled approach. However, the logic of this argument is that it will work best if the network is a true Open Access business.

35. The different businesses remain together primarily to gain the efficiencies of sharing common facilities and to gain competitive advantage. However, bundling is no longer the only, or even necessarily the best, solution from an efficiency perspective. Is there a public interest in keeping together these two quite different businesses? They are grouped primarily for historic reasons. They need quite different management skills. The main justification for keeping them together seems to be that together they inhibit competition.
36. Much current regulatory work relates to third parties forcing the incumbent to untangle the two different cost elements bundled in a single entity and reconstructing the costs as if there were two separate entities. The regulated party has every incentive to obfuscate this process. From what I have heard in Hong Kong, and elsewhere, there is evidence that the regulator is quite definitely at a disadvantage with respect to information and to instruments of control. Experience almost everywhere suggests that the OECD is correct when it says that the level of competition under behavioural approaches is less than if the incumbent did not have the incentive to restrict competition.
37. It is technically very simple to separate the ownership of competitive services from the ownership of less competitive networks²⁰. Structural separation helps align incentives with the needs of regulators. Business advantages from separation have been identified. If there are advantages to the incumbent as well, the regulatory based case for separation is stronger. Does structural separation have any advantages for the incumbent?

OPEN ACCESS

38. If a government announces tomorrow that it is its intention to require all networks to become open access, dedicated network companies, the reaction of all incumbents would be “shock-horror.” The incumbent in every jurisdiction regards its network as its competitive advantage and as a barrier to new competitors. From the regulatory point of view the objective is to turn the network from being a barrier to new entry into a platform for new entry. This will not happen unless there is something in it for the owner of the network.

²⁰ However, in our model we would envisage exchanges being included in the services business, not in the network. The reason for this is that a company’s intellectual property is embodied in the exchange software. Taking this out simplifies disclosure requirements and removes most of the reasons why anyone would want to obfuscate.

39. Work done by my colleagues from Guinness Gallagher suggests that there are substantial benefits to shareholders in taking the step of separating the two historic businesses. Far from adding value to a business, our analysis suggests that the idea of having an in house, exclusive, or near exclusive, proprietary network may subtract value from the business. If this is the case, separation will release shareholder value.
40. The reason for this is simple. If a network is a proprietary network, its potential throughput of data is restricted to the volume that can be generated by a single network. If the network is an Open Access Network, open to all comers, its potential throughput is much greater. Even without any regulatory protection for the Open Access Network, if customers believe that the network will remain open access, the probability of a competitive network rollout is reduced. Table 2 shows that if the probability of a competitive rollout is reduced, the value of the existing network is enhanced. The same effect operates whether there is one network or three currently in operation.

Table 2
Open Access and Value of Network

For a network with revenue \$1 billion, costing \$ 2.5 billion		
	Probability of competitive roll out	NPV \$ of Open Access Network
Proprietary network	90 percent	5.4 billion
Semi-proprietary network	50 percent	6.8 billion
Open Access Network	20 percent	7.8 billion

Source: Guinness Gallagher

UNIVERSAL ACCESS

41. The original argument in favour of the vertically integrated monopoly was to facilitate regulator mandated universal service by cross subsidisation²¹. Competition shrinks the ability to cross subsidise remote consumers. Concerns can then be raised about the fate of remote consumers under a split of networks and services.
42. We oppose regulatory authorities limiting the building of additional networks. In our view the only limitations should be those imposed by bankers on un-bankable projects. Despite that, reducing the incentive to create additional networks may seem to be both anti-competitive and work against universal access. However, in our view this effect is more than offset by the advantages of having networks in place that have an incentive to maximise data handling from any source.

²¹ It is impractical to talk about universal fixed line service in developing countries like Cambodia. However, a policy of universal access, such as a telephone in each village is practical.

43. In most countries deregulation has shown that there is not one network but several in place already (usually the military, aviation, maritime and railway authorities have their own). Existing and future network operators will have an incentive to occupy territory not currently covered in order to be the first to attract business from all interested parties. This will not eliminate the need for a universal access subsidy policy but once one is in place, regulation and incentives will again be working in harmony.
44. In summary, we believe that in a country like Cambodia, where both investment capital and human resources are in short supply, should examine favourably a regulatory approach which will simultaneously encourage:
- administrative simplicity,
 - rationalisation of assets,
 - efficient use of capital,
 - enhanced service competition, and
 - extended service coverage
45. It can be said, on reasonable grounds, that potential service providers may be suspicious that a formerly bundled network and service company will never truly separate itself. Experience from the electricity industry is that no matter how close colleagues were formerly, once bonuses depend on good negotiations prior knowledge equals tough negotiations.
46. There is always a danger that government policy will change, that there will be a take over bid for the network and the service company will suddenly find itself with a bundle of clients and no way to reach them. However, this fear has not seemed to deter the customers of PCCW Wholesale, or similar organisations in other countries. The threat of future regulatory intervention does not seem to deter the various groups interested in buying BT lines (what sensible business wants to put its main clients out of business and attract regulatory censure as well). Again, it is a relatively simple regulatory issue to ensure that any sale of assets will not have anti-competitive purpose or effect.

EX-ANTE AND EX-POST

47. Given that it may be possible to set up a system with Open Access networks when starting from scratch, ex-ante, is it feasible ex-post as well? If it is possible, then the model could have wider application. In a speech to the IIC Regulators' Forum in Singapore in September 2001, Mr Au, of the Hong Kong, Office of the

Telecommunications Authority (OFTA) draws a valuable distinction between ex-ante regulation and ex-post fair competition laws.

48. If we look at the elements included in Regulatory Provisions and Fair Competition Laws, respectively, the most striking difference between them is the attitude to tangible assets. Structural Separation ex-ante, designed to improve the competitive environment is widely regarded as a move towards a light handed regulatory approach. By contrast, ex-post, regulators are extremely reluctant to require institutional break up or divestment of assets. This is widely regarded as a relatively heavy-handed regulatory approach.
49. The reason for this is clear. If the break up is regulated ex-ante, i.e. before privatisation, the vending authority receives less for the assets and business sold than they otherwise would. The sector is more competitive and in the long run. Any value lost is transferred to final customers in the form of lower prices. If a break up takes place ex-post the incumbent has gained the value of being the owner of the near monopoly asset and the rentals that accrue from this ownership (whether or not there is regulation on prices). The break up is, therefore, seen as destroying value in the business.
50. What is suggested here is that there is a way that much of that lost value can be regained. The incumbent can benefit but at the same time, customers can enjoy the benefits from competition. The difference is that by offering its network capacity as an Open Access Network, the network owner can make better use of its facilities. The incumbent can benefit from reduced unit costs while the consumer can benefit from increased competition. By recognising the differences between the two businesses a structural scheme can be devised to enhance the benefits obtained by both.

OPEN ACCESS NETWORKS

51. Is it practical to move from where we are today to a system characterised by open access networks? Enough has been said in paragraph 30 to indicate that a major shake out is underway in telecommunications. More and more jurisdictions are considering regulatory arrangements which include open access aspects, such as:
 - mandatory roaming,
 - obligatory shared facilities,
 - non-discriminatory access,
 - separate accounting for management services / network, and

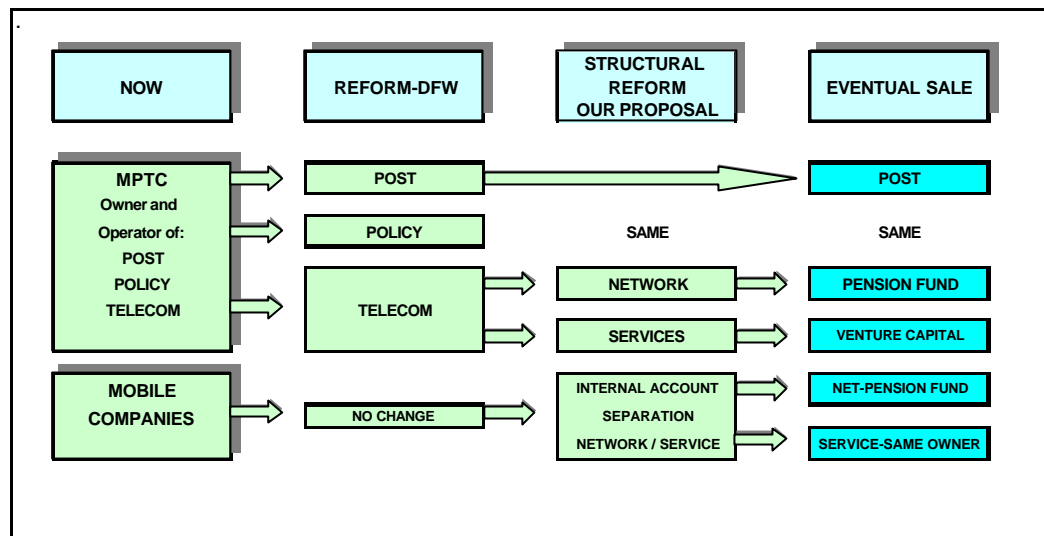
- confining regulation to network costs.
52. An Open Access Network policy is also a pro-competition measure. An Open Access Network Policy will not create new monopolies if:
- regulations allow anyone to build new networks with their own resources,
 - the threat of new networks is keeps the existing ones competitive,
 - however, the PROBABILITY of new networks is not high because bankers will be reluctant to lend money if a good, open access network with spare capacity is already in place.
53. What is clear is that policy makers in Cambodia, Hong Kong and elsewhere will not be able to avoid making policy decisions in relation to companies that for whatever reason decide to turn themselves into Open Access Networks. The issues that will face owners will be similar to those described in a recent article about the options facing British Telecom:

“It comes down to this: is BT's core asset its wires, or its customers? Choosing the former is safer, the latter more difficult, but with more scope for long-term growth. The speculation about which of these routes the company should take—and the fact that its current plan seems to be to do neither—is symptomatic of BT's failure to define its strategy. BT seems to be suffering from managerial paralysis. Either that, or its refusal to sell its infrastructure stems from a desire to continue as a lumbering, dinosaur-like monopoly, and to put off having to face real competition for as long as possible.”

RESTRUCTURING CAMBODIA

54. What I have attempted to show is that my colleagues and I have concluded that there are good reasons, from regulatory, business and economic efficiency perspectives for Cambodia to look closely at a policy of eventually splitting services and networks into different and mutually exclusive organisations.

Figure 4 The Reform Process



David Butcher & Associates

55. We have not suggested that Cambodia plunge ahead of the World into the unknown. What we have suggested is that a number of steps should be taken which are robust even if taken no further. They are consistent both with the government's current objectives and with bringing forward the benefits of structural separation if that is the chosen path. If we are right and industry trends move continue to move in that direction, Cambodia will be well prepared. Our other recommendations on interconnection, fair competition and rate rebalancing are consistent with this approach.
56. As a first stage we have recommended the creation of separate institutions for:
- policy – a ministry,
 - regulation – an independent agency,
 - business operations – all business operations of MPTC and another state owned company into Telecom Cambodia and Cambodia Post,
 - ownership functions to the Ministry of Finance.
57. In addition, we suggest the separation of telecom Cambodia into a network management section and a customer service section. The only additional requirement to be imposed on the private sector at this stage would be the requirement that they account separately for network and service costs. The former would be made public and the latter would remain private. The reform process we envisage is illustrated in Figure 4.
58. Given the commercial drivers at work in the sector and the benefits to be obtained, we anticipate that these measures will alter many of the incentives faced by players in the sector. They will simplify the regulatory tasks of the new regulatory authority.

They will robust if we are wrong and will stand Cambodia in good stead if we are right about the future directions of the industry.

CONCLUSION

59. For Cambodia, as for Hong Kong, telecommunications is a vital development tool. Cambodia is started from further behind than almost any country in the World but in terms of service quality is already ahead of China, Myanmar, Laos, Thailand and Vietnam in many respects.
60. In our work with the Cambodians, we have tried very hard to look ahead of the acronyms regulators toss around with great enthusiasms. We have tried to avoid confusing policy implementation with policy objectives. Our goals are clear: enhanced access and cost effective service. The policy to achieve these goals is competition in the market place. One means of implementing the policy is the institutional unbundling and steps towards unbundling wires and services (or separating the hardware from the software).
61. There could be a few losers. They will be those who like to sit on comfortable monopolies and take comfortable margins for little effort. As always, the winners from enhanced competition and greater efficiency will be the consumers of telecommunications services. The beneficiaries of enhanced competition will be those who have endured so much over so many years, the ordinary people of Cambodia in its fields, factories and homes.

CAMBODIA: NETWORKS, SERVICES and REGULATORY REFORM

Hong Kong University

7 December 2001

**Hon David Butcher
David Butcher & Associates**

World Bank Technical Assistance

Project to strengthening the Telecommunications regulatory framework in Cambodia, in:

- fair competition
- interconnection regime
- rate-rebalancing

The project

- aims at cost effective communications, but must be aware of the need to:
- keep the revenue stream to government

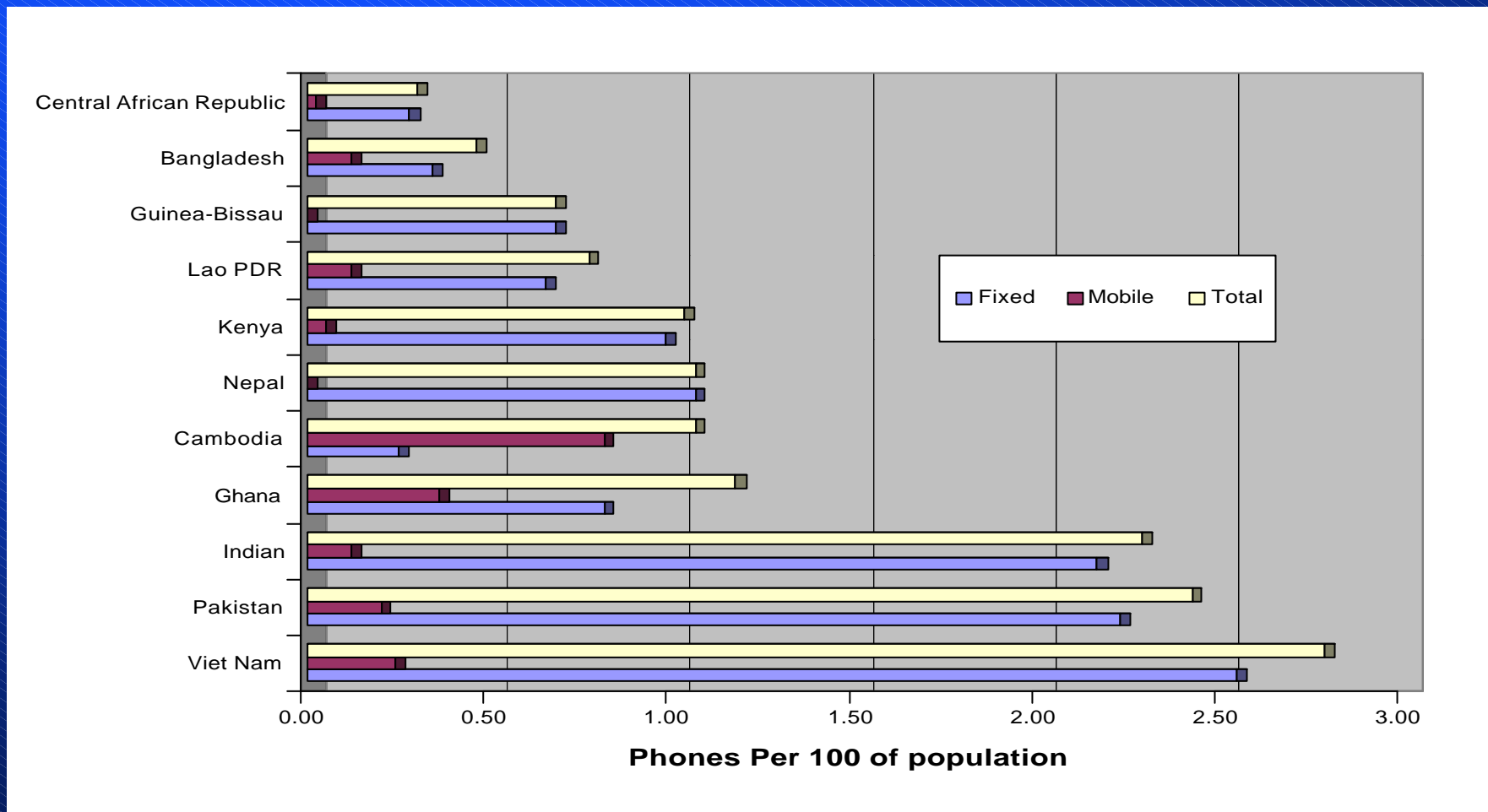
Key Issues in Telecommunications

There are two important issues in Cambodian telecommunications, which should be a focus of government policy,

- extending the coverage of access to telecommunications as a development tool
- keeping the real cost of telecommunications as low as possible to facilitate the development of businesses to increase wealth and employ Cambodians

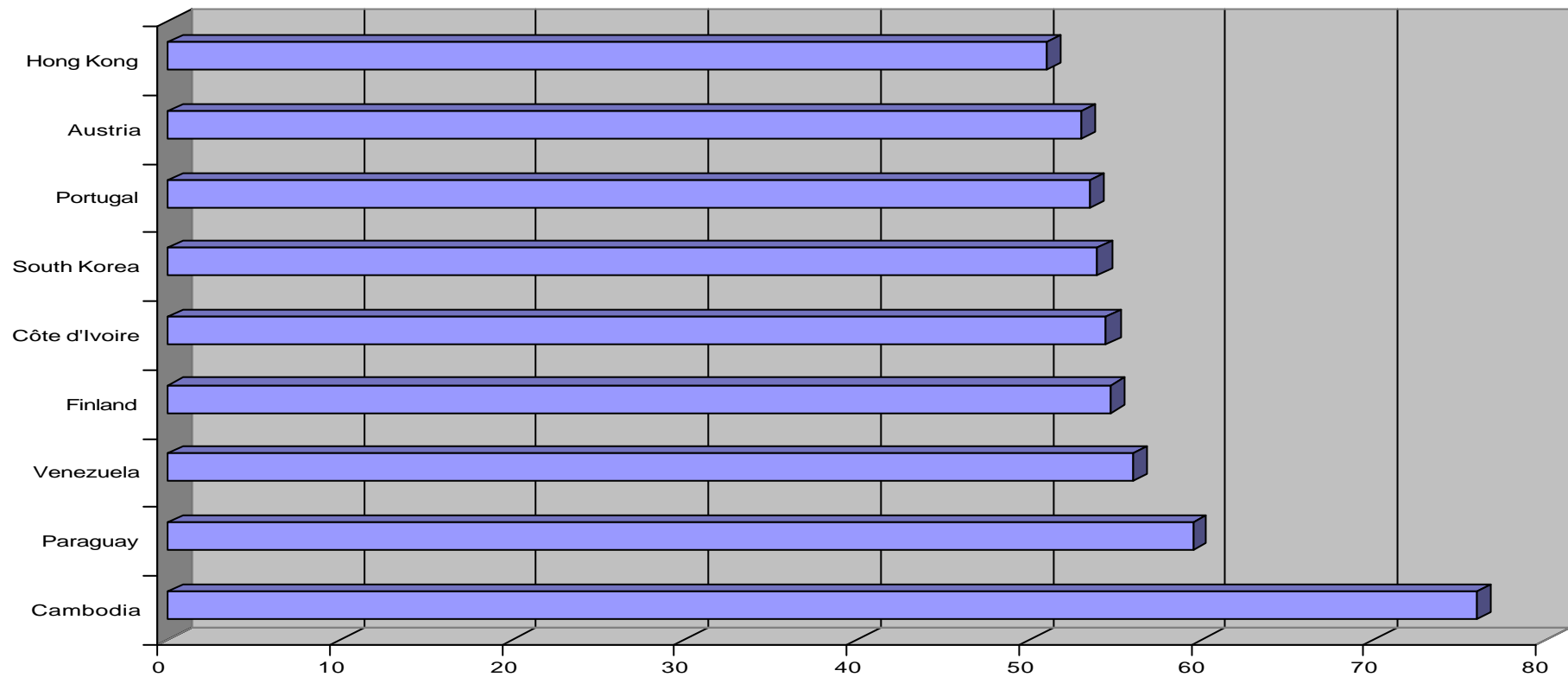
All other issues are subordinate to these two key strategic objectives.

Cambodia: Average-Total Phones High Proportion-Mobiles



Source: ITU Mission in Cambodia

World's Highest Mobile Share



Source: ITU Mission in Cambodia

Cambodia is Different

Cambodia	Most other countries
The main effort is to strengthen the fixed services to compete with the strong mobile services	The main effort is to strengthen the mobile services to compete with strong fixed services
The main effort is to strengthen the previous incumbent to be able to compete with strong entrants	The main effort is to strengthen the entrants to be able to compete with the strong incumbent

Source: ITU Mission to Cambodia

What is the Market for Phones?

Organisation	Masterplan (bottom up and top down)	Weidleplan Eastern Loop (bottom up)	MPTC from Weidleplan Low estimate	Teleplan billings /customer lowest	Actual
Year	2003	2005	2005	2001	2001
Fixed	150,000	77,549	126,114		28,061
Mobile	25,000				234,000
Other	5,000				
Total	180,000	77,549	126,114	375,000	262,061

Achievements of Cambodian Telecommunications Sector

Cambodia has achieved:

- a mobile phone system that is:
 - close to world class
 - competitive
 - privately provided
- a relatively modern fixed line system since 1990
- a high quality, backbone fibre optic cable system
- private sector investment in mobiles, wireless networks, internet and gateways

Problems to be Addressed

- **fixed line**
 - has limited penetration and high unit costs
 - too few connections to cover fixed network costs
 - FOC downtime is unacceptable by any standards
- **mobile**
 - has duplication of networks
 - long-term, is relatively expensive communication
 - danger of a dominant player emerging
- **interconnection regime**
 - was illogical and unfair, now unsustainable

Principal Institutional Problem

MPTC is an integrated, policy, regulatory, operational and asset management agency,

Expert advice is unanimous that this leads to

- conflicts of interest
- poor asset management
- business decisions suffer from political intervention
- political priorities suffer from a preoccupation with business issues

Example: Gateway One Problem

distorted priorities:



- gateway one owned by MPTC
- currently facing strong competition from gateway 2
- represents US\$ 12 million in a sector worth about US\$ 100 million
- yet saving Gateway One is the major preoccupation for MPTC
- policy and effort should instead focus on the key interests:
broadening access to service and reducing the cost of use

Example: Mobile vs. Fixed Phones

- **THE BIG DIFFERENCE:**

- fixed line in the state sector, no money, no autonomy, no progress
- mobiles are private, growing fast, light handed regulation

- **SUGGESTS**

- competition in the mobile sector has produced, good services
- state management has produced poor service, stagnation and lost opportunities

- **CONCLUSION**

- encouraging competition for the consumer telephone dollar will result in improved services and coverage

All Advisers Recommend

MPTC should have its current functions located in separate agencies:

- policy - the correct function for MPTC
- regulation - an independent function
- business operations: Telecom Cambodia a commercial entity with operational autonomy, eventually private
- ownership interests, Ministry of Finance

This will address conflicts of interest and give fixed line business the chance to develop

Natural Monopoly

Telephone companies were “natural monopolies” with networks too expensive to reproduce,

- were made legal monopolies as well,
- monopoly extended to other areas, e.g. maintenance
- were “regulated monopolies”,

Now, even where only one backbone network, competition is possible in exchanges and retail,

- modern switching will make regulation very difficult,

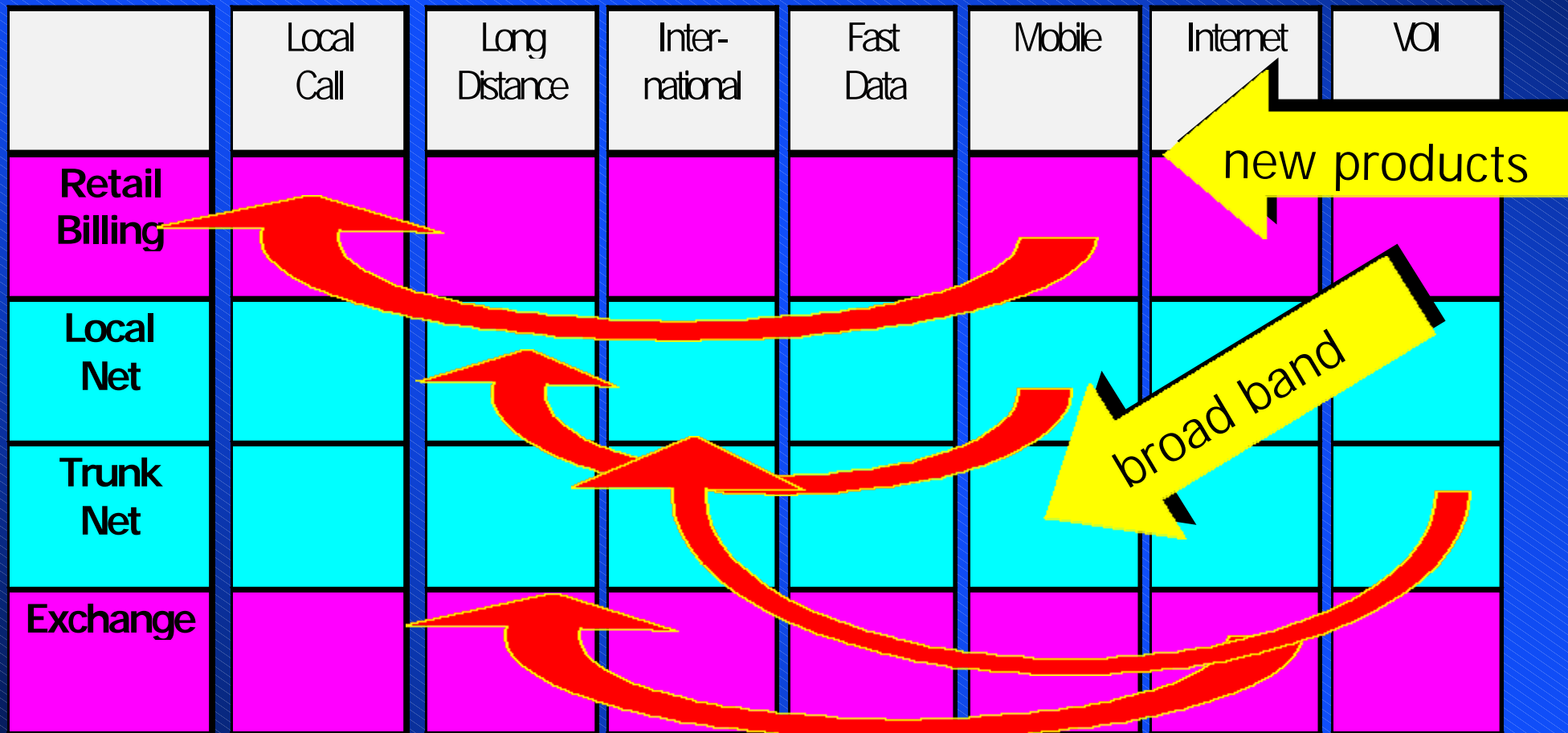
What is the appropriate regulatory framework?

DB&A Approach to Regulation

As an ex-regulator, has a profound scepticism about the benefits of regulation:

- the assumptions should be that competition will remain the prime regulator of the economy and sector,
- aligning incentives facing the utility, with regulatory policy objective, will produce better results,
- the purpose of network regulation is to prevent the operator of a monopoly, from using monopoly profits undermine competition in a complementary competitive market,
- the test: is there any need to regulate, and if so, has the most efficient measure been selected

Former Allies Now Competitors



Historically: Networks a Barrier to Competition

Retail Billing	Competitive (service companies)								
Local Net	Monopoly (network companies)								
Trunk Net									
Exchange	Competitive (service companies)								

Open Access Networks

- DB&A team believes that all network owners should be obliged to operate them on an open access basis:
 - mandatory roaming
 - shared facilities
 - non-discriminatory access
 - separate accounting and management services / network
- this will reduce the danger of network profits being used to unfairly compete for customer services
 - encourages competition in customer service businesses
 - regulation is simpler, confined to the network
- separation of networks and services is happening fostered by regulators (OFTEL) voluntarily (AT&T)

Future: Open Access Networks the Platform for Competition

multiple, competing service companies

network companies: single platform for
competition

service companies may link with above

Open Access Pro-Competition

an open access network policy will not create new monopolies if:

- it is possible for anyone to build a new network with their own resources,
- the real threat of new networks is allowed to keep the existing ones up to date and competitive,

However

- the PROBABILITY of new networks is not high because bankers will be reluctant to lend money if a good, open access network with spare capacity is already in place

Different Investors Required

	Network Company	Service Company
Product Life	long	short
Complexity	low	high
Information	public	private
Risk	low	high
Return	low	high
Investor	risk adverse pension fund	high reward venture fund

Open Access Increases the \$ Value of Network

For a network with revenue \$1 billion, costing \$ 2.5 billion		
	Probability of another roll out	NPV \$ of Open Access Network
Proprietary network	90 percent	5.4 billion
Semi-proprietary network	50 percent	6.8 billion
Open Access Network	20 percent	7.8 billion

- there are strong incentives for existing network owners to become part of an open access network (Metcalfe's Law, "value of a network = square of number of users")

Tools to Create Open Access

All consultants recommend mandatory ROAMING and SHARED FACILITIES, for mobile services:

- every tower accept calls from all companies
- site owners collect a fee for the service they provide
- competition for the best sites and widest service
- will speed the introduction of service to new areas
- there will be no reason to build new networks
- networks will no longer be a barrier to competition

will create an incentive to rationalise networks with no need for other regulation

Addressing Revenue Needs

A plan was needed to address the government revenue needs. We recommended:

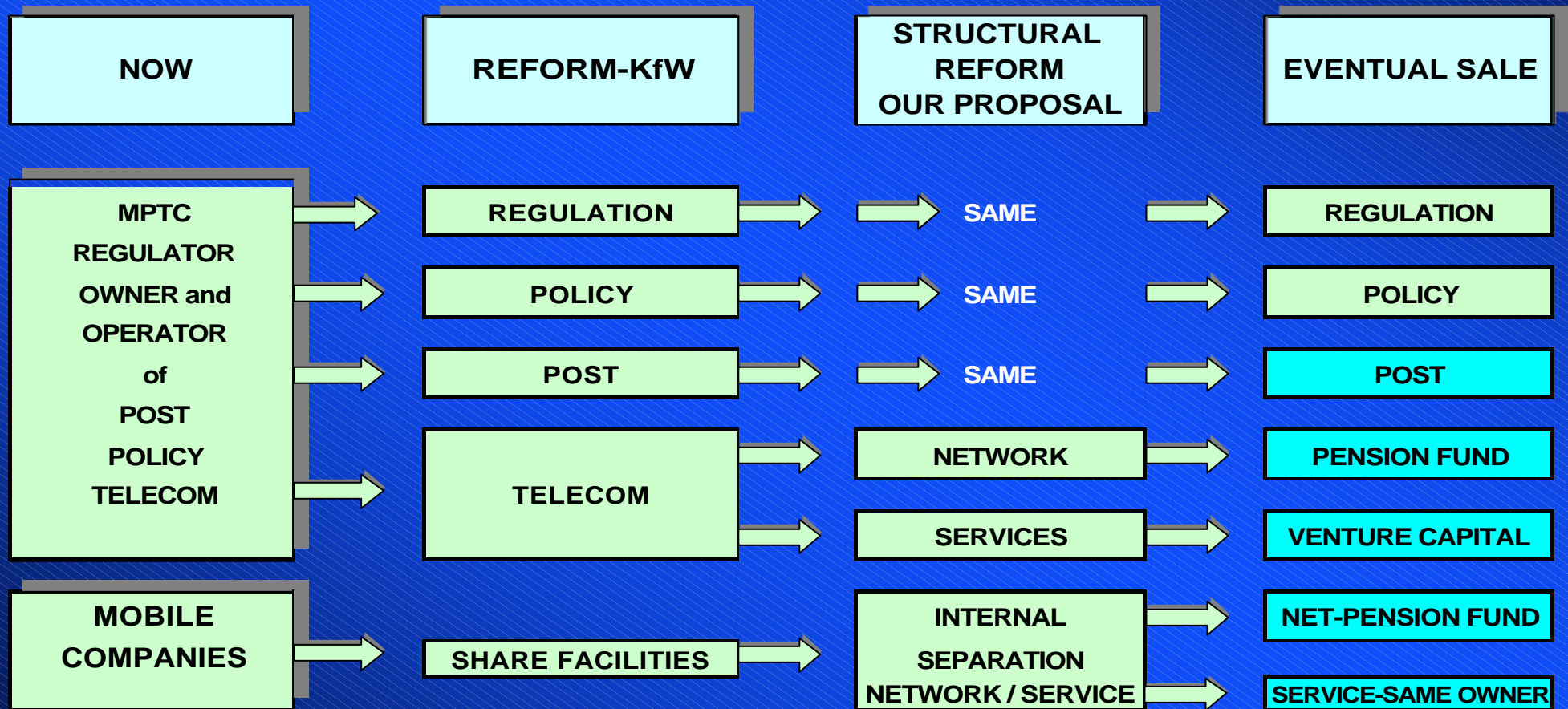
- a focus on revenue not on ownership, i.e. take a declining share of a rapidly growing market
- boost fixed line connections: e.g. ZERO charge for new connections (+3 months rent in advance). This will reduce unit costs and cut net interconnect payments
- negotiated interconnection agreements to reduce the cost to the government (one small company negotiated a cap on its payments with largest mobile company)
- a levy on all gateways to expand revenue with use

Pathway Forward

Reform will be good for Cambodia:

- announce
 - policy statement and
 - pass a postal and telecommunications law
- separate:
 - policy
 - regulation
 - ownership / operations (also networks / services MPTC)
 - postal
 - corporatise (we suggest network + service split)
- privatise (no cross ownership, networks/services)

Reform Pathway



Cambodia's Telecommunications

Cambodia is already at the leading edge

- big advances in mobile services but fixed is stalled,
- high proportion of mobiles, but must ensure continuing competition
 - regulatory provisions should be the minimum necessary
 - fostering public and private Open Access Networks will avoid the need for much detailed regulation
 - fostering separate competitive and network activities will increase transparency and reduce monopoly power
- reform in harmony with goals: of Cost Effective communications and Enhanced Government Revenue

Wider Application: Vertical Integration Under Threat

- specialised service companies, e.g. Vodaphone do better than those of larger conglomerates,
- when conflicts inside conglomerates, the best is a compromise, the worst a disaster, e.g. AT & T
- other companies are going the same way e.g. BT,
- bundled companies recognise the need to wholesale data transmission capacity e.g. PCCW,
- specialised network only companies are emerging (e.g United Networks).

CONCLUSION: A new approach is required