Benchmarking National Telecom Regulatory Authority web sites of Asia-Pacific Region

(A web survey conducted by LIRNEasia)

ver 1.3

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1.0 INTRODUCTION

1.1 E-government as an NRA delivery channel

E-government as a model, is significantly different from the traditional model of the government. In contrast to the way the government services have been delivered for centuries, today the government agencies are expected to deliver information or services through electronic means, at any given place, round the clock, often with a value addition. In this model a government is expected to incorporate all three types of interactions it usually involves in, namely   government to citizen (G2C), government to industry or business (G2B) and inter-governmental dealings, which is frequently referred as government to government (G2G) to a single mechanism. By leveraging the Internet economy, the governments both in the developed world as well as developing world are now busy with transforming all these three relationships by providing universal, anytime-anywhere access to all government information and services.

A web site [1] of any government agency is one fundamental window to realise the true spirit of the e-government. A properly build web site provides citizens and its other stakeholders with one of the best interface to the said agency. It allows for self-service, whether a citizen looks for a certain piece of information, does a transaction or obtains a copy of a certificate. It is available round the clock and does not mandate a citizen to waste time in waiting in queues. In addition, the business firms can search for opportunities with government, find the data they search for and even apply for certain facilities on-line. In short, a web site is a virtual representation of the entire organisation in cyber space.

 The obvious next step in the e-government ladder is the **virtual organisations**. In this model, the web site is much more than another window of an organisation. Basically, the web site itself will be the organisation. It is immaterial to the stakeholders where the organisation is physically located. The stakeholders, particularly the general public, do not have to physically visit the organisation. Instead, they interact with it electronically. So the web site of an organisation   or in broader terms, whatever the form of its Internet presence in future   becomes the nucleus of an organisation that binds the rest of the stakeholders together.

As Mahan correctly identifies, the importance of a National Telecommunication Regulatory Authority web site could never be underestimated. (Mahan, 2004) A

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[1] Sometimes the term web portal is used to define this electronic window that offers all citizen services of a government agency, but this study prefers the less glamorous term web site because web portal has other meanings in the computer literature.

National Regulatory Authority (NRA) is one of the key government agencies in any country. It is the apex body that largely responsible for the healthy growth of the telecommunication sector and the diffusion of telecommunication services to the public at all levels. It serves a large group of stakeholders varying from citizens to businesses and prospective investors to incumbent telecom operators. The web site of an NRA serves as an information gateway to all these interested parties.

In addition to serving as an instrument for transparency and accountability objectives, a well-designed and informative web site can also demonstrate the extent and facility with which the NRA uses the technologies and services it regulates. A well-maintained web site increases confidence in the regulator s skills and capacities. Moreover, an effectively run web site with useful, up-to-date information and functionality can be an effective communication tool that not only speeds up communication, but decreases time and costs incurred for regulatory compliance. (Mahan, 2004)

1.2 Benchmarking of e-government initiatives

The return on investment is not necessarily the prime objective when e-government projects are conceived. Some times e-government projects are driven by achieving operational efficiency and effectiveness in service delivery. On the other hand, financial constrains are common in government, hence there is an increasing demand to re-examine their spending priorities. Further, e-government programmes are subjected to scrutiny to find out whether they deliver the promised payoffs or not. Such situations call for detailed evaluation of the e-government efforts.

Three specific kinds of situations have been identified as environments that require evaluation of e-government initiatives. The first one is the e-readiness assessment of states or region. The second is evaluating the performance of a specific e-government programme or project and the third is the overall impact of e-government on general government functioning, economic development and services to the citizen. (Gupta, Kumar and Bhattacharya, 2004)

2.0 METHODOLOGY

2.1 Previous initiatives on parallel lines:

For its methodology and structure, this web survey has been largely guided by two parallel previous studies given below:

(i)   United Nations Division for Public Economics and Public Administration (UNDPEPA) and American Society for Public Administration (ASPA) (2001) ***Benchmarking E-government: A Global Perspective - Assessing the Progress of the UN Member States*** Final report was authored by Stephen A. Ronaghan (Hereafter referred as the UN study)

(ii)   The World Dialogue on Regulation for Network Economies (WDR) (2004) ***Benchmark indicators for African NRA web sites*** : A report on the web survey conducted by Amy Mahan (Referred as WDR study)

The goal of the UN study was to objectively present facts and conclusions that define a country s e-government environment and demonstrate its capacity to sustain online development. This was accomplished by a comparative analysis of fundamental ICT indicators and critical human capital measures for each UN Member State. An important outcome of this study was the final measure or **E-Government Index**, which could be useful tool for policy-planners.

In determining what defines an enabling environment, this report has analysed critical factors by benchmarking the core areas endemic to national e-government programmes. The final measure, **E-Government Index**, attempts to objectively quantify these factors, and establish a reference point for which a country can measure future progress. The E-Government Index presents a more inclusive and less subjective measure of a country s e-government environment. It incorporates a country s official online presence, evaluates its telecommunications infrastructure and assesses its human development capacity.

On the other hand, the WDR study, which is more relevant to this web survey, benchmarks web sites of independent National Regulatory Authorities (NRAs) of 22 African states. This study has grown out of a collection of regional preliminary surveys examining the extent to which NRAs were using web sites to inform and communicate with the public including citizens, businesses and other governmental and non-governmental organisations. WDR study also tests and introduces a new

indicator for ranking NRA web sites. This measurement is an attempt to capture the incidence of different aspects that are important for NRA web presence.

Mahan acknowledges that a web site presence indicator for NRAs cannot capture overall effectiveness, efficiency or transparency of the regulator. What the benchmarking process does attempt to do, however, is to clarify categories of information and their respective users, and to indicate responsiveness and interactivity in providing information.

The UN study classifies all governmental services under one of three fundamental categories: informational, interactive and transactional.

The first, informational, is by far the most significant. Information is at the heart of every policy decision, response, activity, initiative, interaction and transaction between government and citizens, government and businesses and among governments themselves. Thus how an e-government web sites presents information is a significant indicator of its effectiveness.

Also, since services are the public face of government, another primary objective of all e-government web sites is to provide the citizen user with an efficient alternative medium for interacting with public sector service providers. This is generally accomplished by improving the flow of information both externally (G2C and G2B) and internally (G2G).

Finally, the e-government web sites are also expected to provide transactional services and reduce the inconveniences the public face while receiving the same services in the traditional manner. At the Transactional Presence level, a country fully demonstrates the capacity for users to interact with the government by purchasing publications or other item, or utilising a service like obtaining a passport and paying for it online with either a credit card, bank debit or by some other electronic means. However, only a handful of nations have reached this level. The UN study names 17 such countries.

Unlike the UN study, the WDR study places more emphasis on the provision of information services. This can be most probably because looking from the NRA s and its stakeholders point of view, it can be the most important service to be provided by an NRA site. This web survey too followed the same approach.

This web survey of Asia Pacific countries too initially planned to use the following definitions to measure the e readiness of different nations introduced by the UN study and modified in the WDR study to suit for NRA sites:

❑ **Emerging**: Only basic and largely static information is available.

❑ **Enhanced**: Content and information is updated regularly, and information is available not only in its original format (such as acts and legislation) but is also explained and digested.

❑ **Interactive**: Users can download forms, contact officials and make requests. Available information has further value-added, such as being hyper-linked to relevant legislation.

❑ **Transactional**: Users can submit forms online   for example to request information, or to submit a request for license form.

However, during the web research it was found that:

(a) Not all Asia Pacific NRA web sites considered can be termed under one of these categories. The boundaries were somewhat vague. For example there were many sites, which could be placed in an overlapping region.

(b) This was not the only approach that could be used to evaluate the effectiveness or usefulness of an NRA web site. For instance, it could be possible that an NRA web site which is still in its enhanced stage can be more effective / useful to its stakeholders than another web site which is in the interactive or transactional stage.

Therefore, it was later decided not to use this general qualitative classification to rank the NRA web sites. A more comprehensive and meaningful quantitative making scheme has been used for the purpose.

2.2 Selection of countries

While selecting the countries every effort has been taken to include the maximum number of countries in the Asia Pacific region and pick a group of countries that represents:

❑ Every sub-region in Asia pacific (East Asia, South East Asia, South Asia, Pacific, Central Asia and Middle East)

❑ Countries at different levels of development and

❑ Countries at different levels in their human development achievements

However, the selected group might not be a fair representation of all the categories one might expect, as the NRA information of some of these countries was not available, and in some cases the NRAs did not have web sites, which were developed to a stage to be evaluated in this survey.

The method of selection is given below:

(i) For the purpose of this survey, Asia was broadly defined as the group of countries in the region confined by the countries Russia, Turkey and Egypt and Indian and Pacific oceans and the islandic nations in the said oceans. [2] This group with the pacific countries, formed the first list of countries and included 62 different independent territories. The recognition by UN was used to decide whether a country is an independent territory or not.

(ii) Each of the above 62 countries was then checked for the telecommunication regulator information at the International Telecommunication Union web site. (www.itu.org) if the regulator information for a certain country is not available, that country was taken out from the list.

(iii) At this stage, no efforts were taken to decide whether the NRA is independent or not for two reasons. [3] One was the difficulty in drawing the line between the independent and not independent NRAs. The second and perhaps more important reason was that this survey was not intended to evaluate the performance of the NRAs per se, but rather an effort to evaluate the performance of the web sites of NRAs. So even if some other government agency (usually a ministry) is engaged in carrying out the duties of an NRA, it was considered for the benchmarking purposes. [4]

(iv) In the next step, all the remaining countries were checked for the availability of an NRA web site. It was observed that many NRAs have not yet opted to have a web presence. In two cases, the available link did not work. In both cases, Google searches were conducted to find an alternative web site, but were unsuccessful.

(v) Then it was checked whether the web sites are developed to a stage where it is fair to evaluate them in a competitive survey. For instance in

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[2] This is the same definition used by LIRNEasia

[3] This is one instance this study deviated from the WDR study, which only considered the web sites of the independent NRAs for the survey.

[4] Some such agencies were later eliminated from the list, but for different reasons.

some cases — Syria was a good example — the sites were still under construction, so it would have been unfair to evaluate them at this stage. Also in case of some other countries (especially when the NRA is not independent) the web sites were found to be inadequate to be considered as NRA sites. [5] Such countries were eliminated from the list.

(vi)   Finally, five NRAs web sites were taken out of the list, unwillingly, due to a practical difficulty. These five NRAs, namely those of Armenia, China, Indonesia Thailand and Yemen have opted not to have English versions of their web sites. These NRA web sites were eliminated from the list purely due to the practical difficulty of evaluating them and not because it is suggested that every country should have an English version of the web site. South Korea does have an English version site, but it was clear this site could not be an exact replica of the local language site, so it too was not considered for the evaluation.

As a result of this preliminary study, 27 NRAs were found to have web sites, which can be evaluated. The complete results are given in Annexure 1.

2.3 Clustering of countries

For comparison purposes, clustering of countries were thought to be necessary. Several ways of clustering the countries were considered. The following table illustrates the considered methods and why each one of them was eliminated.

TABLE 1:

Method	Reasons for elimination
1. Geographically	This looks like reasonable, but if the countries were clustered according to the regions, so of the regions would have left with only few numbers (eg. Only two countries in Central Asia meet the requirement criteria.) Also, countries within a region can be very different in their socio economic standards, so there is less ground for fair comparison.
2. Based on the per capita income of the countries	As clearly seen from the Human Development indices of UNDP, the income of a country is not directly co-related to its living standards.

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[5] Japan, New Zealand and Tonga are best examples. In these cases, the role of the NRAs is respectively played by Telecommunications Bureau, Ministry of Public Management, Home Affairs, Posts and Telecommunications of Japan, Commerce Commission of New Zealand and Prime Minister's Office of Tonga. Though these agencies were responsible for some of the duties of an NRA, it is not fair to evaluate the web sites of them with other NRA web sites.

3. Based on the Human Development index	This is another good indicator, but it was not considered as this is also not directly a measure of the development of a country.
4. Based on the e-gov index of the UN study	This would have indicated how each NRA is using the web presence in providing its services compared to other government organisations. However, there is less reason using this method too, because it is not usually required to compare the performance of NRA with the rest of government organisations. Moreover, the data in the UN study might be outdated now, considering the fact that it was done in 2001.

Finally, it was decided to cluster the countries based on the e-readiness of the population. This can be measured by the number of Internet users per every 1,000 in the population. This method id logical as it compares the e-readiness of an NRA against the e-readiness of the population it serves.

TABLE 2 : E-readiness of each country considered for the web survey

	Country	Number of Internet users for every 1,000 in population
1	Afghanistan	1.5
2	Myanmar	1.5
3	Bangladesh	1.5
4	Cambodia	2.2
5	Nepal	3.4
6	Pakistan	10.3
7	Sri Lanka	10.6
8	Papua New Guinea	13.7
9	Bhutan	14.5
10	Georgia	14.9
11	India	15.9
12	Vietnam	18.5
13	Mongolia	20.6
14	Philippines	44.0
15	Maldives	53.4
16	Jordan	57.7
17	Saudi Arabia	64.6
18	Oman	70.9
19	Brunei Darussalam	102.3
20	Lebanon	117.1
21	Bahrain	245.6
22	Israel	301.4
23	UAE	313.2
24	Malaysia	319.7
25	Hong Kong	430.1
26	Australia	481.7
27	Singapore	504.4

Source: UNDP Human Development Report, 2004

Four clusters were selected based on this information. For convenience, a logarithmic scale was used to make the clusters. As shown by the graph in Annexure III, the 27 countries neatly fall into four categories.

TABLE 3 : Country Clusters

Cluster No.	Countries	Log scale range
Cluster 1 :	Afghanistan, Myanmar, Bangladesh, Cambodia, Nepal	0 0.75
Cluster 2 :	Pakistan, Sri Lanka, Papua New Guinea, Bhutan, Georgia, India, Vietnam, Mongolia	0.75 1.5
Cluster 3 :	Philippines, Maldives, Jordan, Saudi Arabia, Oman, Brunei Darussalam, Lebanon,	1.5 2.25
Cluster 4 :	Bahrain, Israel, UAE, Malaysia, Hong Kong, Australia, Singapore	2.25 3

Cluster 4 countries are the ones with best e-readiness and cluster 1 is the lowest.

2.4 Ranking sites

Any NRA has many different stakeholders. The web site of an NRA should cater the requirements of all these stakeholders. So the best ways to evaluate / rank an NRA web site is to look into it from the angle of each stakeholder and check how far it meets the expectations of each of them.

The four key stakeholders are defined as:

(i)   **Existing Industry Players:** They need to maintain close relationship with the regulator and web site can be one of the best interactive windows they can use for that purpose. The NRA can also use the web site to keep the existing operators updated on the latest regulations and market trends.

(ii)   **Prospective Investors:** The inventors might be operating locally or internationally. An NRA web site is expected to present accurate business information sought by such parties. In case of international operators the web site can be the best medium to find regulatory information. The information they seek through a NRA web site might fall into several different categories. They may seek for legal information such as the telecommunications acts, financial and technical statistics that explains the local market, the relevant procedures   particularly the licensing procedures or even existing interconnection agreements.

A prospective investor must also be interested in the business and economic environment of the country. This information might be available through other web sites and other channels, but a proactive NRA web site

is expected to provide the basic information on the business environment, or at least lead the investor to the other relevant sites through correct links.

(iii) **Consumers:** This category looks an NRA site from the end user prospective. An end user might want to know about the services available, perhaps about the new technologies and their reliability or the performance indicators of different service providers (which might help the end user to make a selection of his/her own). The end users might also be interested in safeguarding their consumer rights and see the NRA web site as a means for the same.

(iv) **Others:** There is a plethora of other indirect stakeholders such as the media personnel, researchers, telecom students etc. Most of these groups depend on the NRA web site for the latest information on the telecommunication sector than any other communication channel.

However, practically it is difficult to use this approach. This is largely because some information is valid for more than one category of stakeholders. So it is possible that some sets of attributes are evaluated more than once. To avoid this work, which was found to be redundant, it was necessary to slightly deviate from this approach. So the following approach has been used to have a more feasible evaluation.

The following are the four types of information WDR study anticipates to be present in an NRA site.

❑ **Factual Information:** Reports on key regulatory information such as the Telecommunications Act, and statistical indicators.

❑ **Consumer and Citizen Information:** Information of interest to end-users or prospective end- users about consumer information, universal service, consumer rights (and reporting abuses) and tariffs. In addition to actual legislation and formal guidelines, digested information such as clear explanations (for example of complaint procedures), and FAQs (frequently asked questions), which will be important to the consumers.

❑ **Business Information:** Relates to information needed by current and prospective operators and investors such as licensing procedures, technical requirements, interconnection agreements, online forms for certification, authorisation etc. Here it is necessary to look for information, which explains and describes the procedures and requirements, rather than mere provision of access to formal documentation and legislation.

❑ **Telecom regulatory news and other features to further disseminate information :** This final category ensures accessibility of information, regulatory news and developments to researchers and journalists who can further disseminate regulatory information nationally and internationally. Often these features contextualise the site information and make it more intelligible.

In addition, there are general features any NRA web site should have to be more effective and useful to its stakeholders. These general characteristics are not taken into consideration in the WDR study. This could be, most probably, because most the African web sites under consideration for that study were not developed to that stage. However, it was added in this web survey, especially after considering the recommendations Mahan offers to researchers of any future studies.

These are the general features against which the NRA web sites are evaluated:

(i) **Availability of the mission statement of the NRA:** Any e-government web site is expected to justify the existence of the NRA. This is to ensure any visitor to the site is given the broad picture of the type of the organisation and its responsibilities and activities. In an organisation, this is accomplished by the mission statement. So it is essential that mission statement of the NRA to be present in the web site. Alternatively, a site can explain its role, responsibilities and authority.

(ii) **Future plans and long term vision :** Telecommunication, irrespective of the country considered, is a continuously and rapidly developing field. Therefore, it is essential for an NRA to have a long-term vision and objectives. Presentation of the same in the web site cannot be termed as mandatory, but that will definitely help a stakeholder.

(iii) **Continuous update of information:** This will be checked by the dates at which last updates are made (if that information is available) or by the nature of the news items and other information. (Unfortunately, the short time span of this study did not allow repeating the survey to obtain better results.)

(iv) **Availability of information in local language(s):** This is relevant if the language(s) used by the citizens of any country is not English. The NRA web sites are not expected to present every piece of information in local languages. However, it is expected that at least some form of local version should be available, if more than a significant percentage

of the countries population (taken as 10% for this web survey) do not understand English.

(v) **Links to external sites:** In this case not only the presence, but also the relevance of the links is important. For example, an NRA site should lead an investor to the sites that will give an idea about the economic environment of the country. The links will also be checked for their validity, as it is possible that in some cases they are not updated regularly. It was checked whether the site provides links to both local and external relevant web sites.

(vi) **Ease of finding information (Separate links for different types of audience in the home page or alternatively, a site map):** This is important to ensure various types of stakeholders will be able to obtain the information they seek for, with minimum effort and without having to visit pages with information they do not need. As an e-government service provider an NRA is expected to build its site in order to minimise the surfing time of a visitor.

(vii) **Organisation charts and Contact information:** One of the key difficulties frequently faced by the stakeholders is to find the names of the relevant persons to contact. For this matter, it is essential for a web site to present an organisational chart and/or the contact details of the officials. This will immensely help those who want to find specific information from the NRA.

(viii) **Availability of on-line forms:** If the different types of forms the public and the other stakeholders need in interacting with the NRA are available on-line, that can save many man-hours. Ideally the site should provide means to submit these application forms on-line, but since only a handful of sites provide this specific feature now.

(ix) **Using web site to meet HR requirements:** This is not an e-government service, but an NRA can use a web site to fulfil its HR requirements in an effective, speedy and cost effective manner. The job seekers who visit the site cannot be considered as a direct stakeholder, but the availability of this feature is recognised especially because it is important from the organisational point of view.

2.5 Marking Scheme

The following table illustrates how weightages were given to each category in the evaluation process [6].

TABLE 4:

	Category	Category weightage	Sub Category	Sub-category weightage (within the category)	Final weightage
1	Factual Information	25%	Regulatory Acts, Legislation, Laws	50%	12.50%
			Statistics and Technical Information	50%	12.50%
2	Consumer and Citizen Information	25%	Information specially meant for Consumers (other than rights)	50%	12.50%
			Consumer Rights Information	25%	6.25%
			Consumer complaints process	25%	6.25%
3	Business Information	25%	Equipment Certification	15%	3.75%
			Market Entry details	15%	3.75%
			Interconnection Information	15%	3.75%
			Consultancy papers	55%	13.75%
4	General	25%	Mission Statement	8%	2.00%
			Future Plans	8%	2.00%
			Update	8%	2.00%
			Local Languages	8%	2.00%
			Local links	8%	2.00%
			International links	8%	2.00%
			Ease of use	8%	2.00%
			Availability of on-line forms	8%	2.00%
			Organisation chart / contact details	8%	2.00%
			Info. For job seekers	8%	2.00%
			Telecom news	20%	5.00%
	Total	100%			100.00%

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[6] One can always argue that this approach is subjective. Questions can be raised why this particular category is given this weightage and why not some other weightage. The author acknowledges the subjectivity of the approach. However, for the quantitative evaluation purposes, it is essential to have a sort of marking scheme, and this was adopted after consulting a group of professionals with wide knowledge on the subject. The weightages given to each category in the previous studies were too taken into account.

Note: In cases where the NRA is not responsible for some particular task (eg. Licensing, handling customer complaints etc) the marks were awarded only if the site has a link to the website of the agency that does so.

3.0 WEB SURVEY RESULTS

3.1. Factual Information

This section looked for the availability of legal information, policy, statistics and technical information of NRA sites.

TABLE 5:

	NRA	Regulatory Acts, Legislation, Laws, Policy	Statistics and Technical Information
1	**Afghanistan**	Detailed information including laws to regulate telephone services and draft law on telecom is available. However, they are not presented in a very user-friendly manner. (3/4)	No statistics are available in the site. But links provided in the site guide a surfer to other sites such as the Development Gateway, Export.gov (a site for international traders) and Afghan Computer Science Association where such information is available. Apparently, the NRA site does not take any responsibility about the reliability of the information provided in the external sites. (1/4)
2	**Australia**	An extremely comprehensive list of acts and legislation is provided. The documentation covers not only the acts and legislation active now, but also ones not in force anymore. The presentation is user friendly. (4/4)	A good collection of technical information is available. Statistics are not directly available in the site, but a surfer might be able to find the information in different set of other reference documents and papers. (2/4)
3	**Bahrain**	Telecom laws per se are not available in direct format. However, a good collection of related information is presented in a user-friendly manner. The regulations and determinations, public notices etc are also available. (4/4)	Statistics are not available, but there is a fairly good collection of technical reports. (2/4)

| 4	**Bangladesh**	All relevant acts including not even the relatively recent Telecommunication and Wireless Telegraphy acts but also the Telegraph Act of 1885 available. In addition, regulations are directives are available. Telecom and ICT policies too add value to the site. Good presentation. (4/4)	No statistics or technical information available. (0/4)
5	**Bhutan**	The only legal document available in the site is the 2004 dated draft of the Information, Communication and Media bill. Few government orders and what have been termed as 'codes and guidelines' are available. (1/4)	No statistics or technical information is available, except for a single white paper, which does not provide only limited information. (1/4)
6	**Brunei Darussalam**	Only the basic information that justifies the authority of the NRA is available. (1/4)	Basic telecom statistics (i.e. Fixed line and mobile penetration) for the last ten years are available. These are compared with the similar data from the neighbouring countries. No technical information.(2/4)
7	**Cambodia**	No legal documents available.(0/4)	No statistics available.(0/4)
8	**Georgia**	The relevant acts and legislation of the telecom sector are available followed by the amendments. The resolutions of the NRA are also available in the chronological order. Good presentation. (3/4)	No statistics available. (0/4)
9	**Hong Kong**	A very comprehensive set of ordinances and regulations available. Presented in the chronological order and a user-friendly manner. (4/4)	A very comprehensive set of statistics, covering all sectors (not just telecom) is available in the site. An excellent presentation. (4/4)

10	India	The Telecommunication Regulatory Act and the telecom policy documents are available. The other information is available in a long list of presentations listed under the generic heading 'TRAI Releases' This list contains a total of 157documents. In spite of the list being comprehensive, this is not a very user friendly presentation. A user might have to put an extra effort to find the correct document. (3/4)	No statistics available. However, the site presents some technical information such as the performance indicators, QoS and survey reports. Provides links to other local and international sites such as Department of Telecom, Internet Service Providers Association of India, Cellular Operators Association of India, International Telecommunication Union, World Trade Organisation etc. where the user might find the required information with some extra effort.(2/4)
11	Israel	Presents a list of acts and other legal documents starting from the Communications Law (Telecommunications and Broadcasting) dated 1982. Good presentation, though the list is brief. (3/4)	Statistics, including the market information is available, though not in direct format. These can be obtained from the different presentations available in the site. (3/4)
12	Jordan	The Telecommunication Act with the amendments is available. Good presentation. (3/4)	Statistics covering the sectors including fixed phone, mobile, paging, data communication, satellite communication and pre paid cards covered with the market information of each sector. Sector's development milestones from 1921 too are available in the chronological order. A user may also find the economic indicators presented in the site useful. (4/4)
13	Lebanon	No legal documents are available in the site. (0/4)	No statistics available. (0/4)
14	Malaysia	A large collection of acts, regulations, rules, exemption orders and notifications are available. These include Communications and Multimedia Commission Act 1998, Communications and Multimedia Act 1998, Digital Signature Act 1997, Communications and Multimedia (Technical Standards, Licensing, and Spectrum) Regulations 2000 and amendments to the same. An excellent presentation and categorised well, so that a user will be able to find a document with minimum effort. (4/4)	Comprehensive statistics covering the sectors including fixed phone, mobile, broadband and Internet are available. These are supported with the economic and business indicators. Technical information in the form of codes and guidelines to service providers too are available. An interesting section is the glossary of telecommunication terms. Discussion / consultation papers and the results of a consumer survey too are available. (4/4)

15	Maldives	Telecom policy, regulation and standards documents are available. Not very comprehensive. (2/4)	Statistics with regard to fixed lines, mobile lines, Internet, card phones and paging available, but only the current status. No historical data is available. (3/4)
16	Mongolia	The communications law and some other related regulatory procedures are available. The information is limited but a good presentation. (3/4)	No statistics are available. (0/4)
17	Myanmar	Only the basic legal documents are available. Not a good presentation. (1/4)	No statistics are available. (0/4)
18	Nepal	Only a section of acts, ordinances, policy documents and regulations are available on the site. However, the available content covers almost all the relevant and recent documents including Telecommunications Act 1997, Telecommunication Regulation 1997, Nepal Telecommunication Authority's (working procedure related) regulation 2002, Telecommunication Policy 2004 and IT Policy, 2000. Good presentation. (3/4)	No statistics available. Only few technical presentations. (1/4)
19	Oman	The Telecommunication Regulatory Act and the policy documents are available. Presented well. (3/4)	Indicators such as the number of fixed line subscribers, mobile subscribers, Internet subscribers, Pay-phone subscribers and the number of SMS messages sent and received are available for three months. No history information is available. Publications page is still under construction. (3/4)

20	**Pakistan**	A comprehensive list of the acts and other related documents including the Telecommunication (Re-Organisation) Act, 1996, telecom rules, access promotion contribution rules, card pay phone service regulations, fixed line tariff regulations, non voice communication network services regulations, interconnection dispute resolution regulations, registration of satellite service providers regulations, Pakistan Telecommunication Authority (functions and power) regulations etc. are available. Excellent presentation. (4/4)	Comprehensive statistics are available. These include numbers of connections provided by individual operators in case mobile phones and the aggregate in case of fixed phones, Internet accounts, payphones, WLL subscribers etc. The teledensities under each category are also available. The information is available on annual basis starting from 1993 in some cases and 1995 in the rest. Good Presentation. (4/4)
21	**Papua New Guinea**	The Telecommunications Act 1996 and the relevant sections of the Telecommunications Industry Act 2002 available. (2/4)	No statistics available.(0/4)
22	**Philippines**	A comprehensive list of acts, executive orders and other official documents available. Good Presentation. (4/4)	Statistics are available in the Annual Report for 2002, a soft copy of which can be downloaded from the site. (3/4)
23	**Saudi Arabia**	The site presents the Communications Act, ordinances and bylaws highlighting the relevant sections. In addition, the policies, regulations and rules are available. Excellent presentation. (4/4)	No statistics available.(0/4)
24	**Singapore**	All the main legislation pertaining to or affecting the NRA are available in the site. These cover Info-communications Development Authority of Singapore, Telecommunications Act and Postal Services Act as well as a gamut of other relevant regulations. Excellent presentation.(4/4)	Comprehensive statistics are available covering all sectors. These include indicators for fixed lines and mobile connections, pagers, dial-up and Broadband based Internet accounts and international telecommunication services. The indicators are available on monthly basis starting from 1997. In addition several survey results on Infocom usage, Infocom manpower and Infocom consumer satisfaction are available. Presented in an excellent manner. (4/4)

25	Sri Lanka	The Telecommunication Act, rules covering QoS and interconnection and a list of orders are available. Good presentation. (4/4)	Detailed statistics are available. Subscriber base information for fixed phone, mobile phone, WLL, pay phone, internet and e-mail etc is available since 1990. Another page provides the ICT Readiness information for the country based on the World Information Technology Report. Good presentation. (4/4)
26	UAE	The UAE Telecom Law document is available in the site to be downloaded.(2/4)	Statistics and technical information not available. (0/4)
27	Vietnam	A good collection of legal documents, many of them are decisions of the Minister of Posts and Telematics, are available, but they are not arranged in a user-friendly manner. (3/4)	Comprehensive statistics on the development of fixed and mobile connections and data communication available. A good collection of information on the Internet users and resources. Good presentation. (4/4)
	Allocation of marks:	**4 : Adequate information with good presentation** **3 : Adequate information with poor presentation or slightly incomplete information with good presentation** **2 : Limited Information** **1 : Only the basic information** **0 : No information**	**4 : Adequate information with good presentation** **3 : Adequate information with poor presentation or slightly incomplete information with good presentation** **2 : Limited Information** **1 : Only the basic information** **0 : No information**

Individual NRA performance (Factual Information)

GRAPH 1:
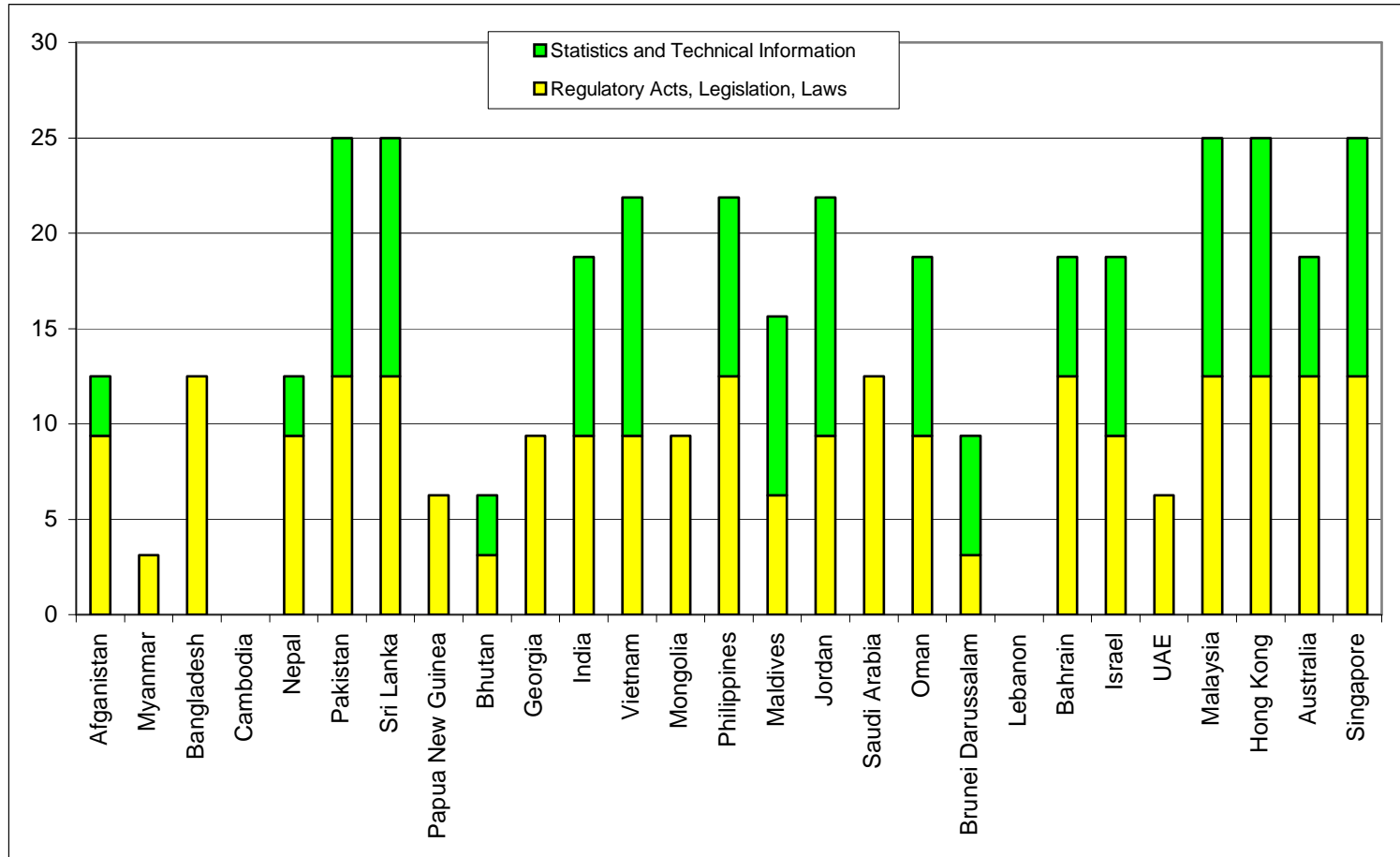
3. 2. Consumer information

The objective of this section was to check how far a web site caters to the needs of the end consumers. Special emphasis was given to see what type of consumer rights information is available and whether the NRA uses its web site to facilitate the consumer complaint process.

TABLE 6:

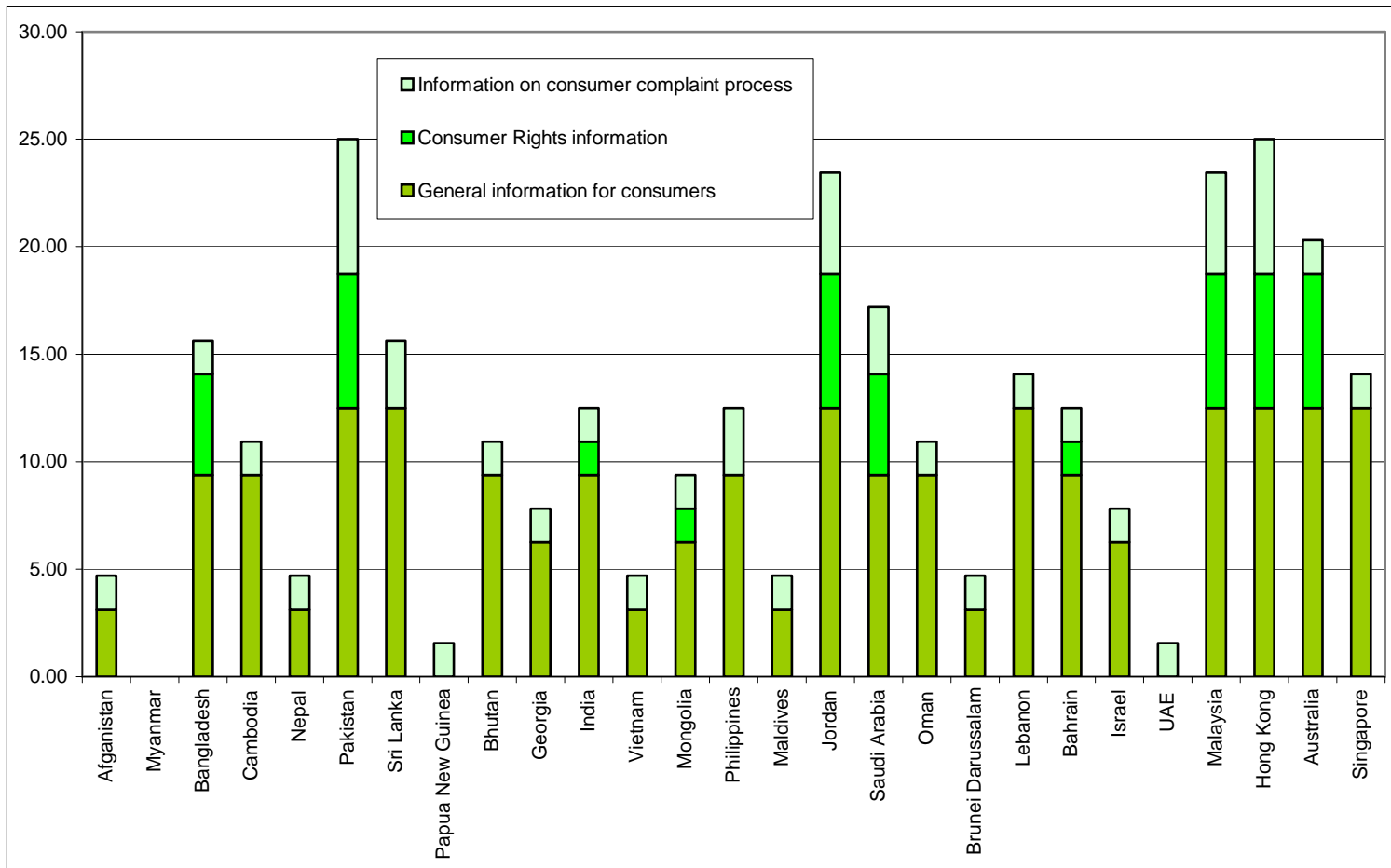|	NRA	Information for Consumers	Consumer Rights Information	Consumer complaints process
1	**Afghanistan**	Information on National Numbering Plan available. (1/4)	A link is provided, but it is not active. (0/4)	No information except contact details (1/4)
2	**Australia**	Information about services for disabled, emergency services, universal services information, consumer alerts etc are available. Good presentation. (4/4)	Detailed consumer rights information is available. (4/4)	No information except contact details (1/4)
3	**Bahrain**	National Numbering Plan and some information on the telecom market are available in English and Arabic. (3/4)	Consumer rights information per se is not available though the site promotes consumer advisory panels. (1/4)	No information except contact details (1/4)
4	**Bangladesh**	Consumer information is not available under a dedicated heading, but the ICT and Telecom policy documents provided adequate information for the consumers. It also has the information on universal access (3/4)	The telecom policy document covers the consumer's rights to a large extent. The site also has a link to consumer Association of Bangladesh. (3/4)	No information except contact details (1/4)
5	**Bhutan**	Tariff and universal service obligation information available, but extra efforts are required to find the same. (3/4)	No information (0/4)	Online feedback form is available, but no indication is given that can be used for complaints. (1/4)
6	**Brunei Darussalam**	Limited information is available in the form of speeches. (1/4)	No information (0/4)	No information except contact details (1/4)

7	Cambodia	Information on International access number available in English and Cambodian. Detailed information on customer services, coverage areas, and promotions are also available. (3/4)	No information (0/4)	No information except contact details (1/4)
8	Georgia	Limited information available in different formats. (2/4)	No information (0/4)	No information except contact details (1/4)
9	Hong Kong	A large number of leaflets providing customers information on various topics such as the mobile number portability, guidelines for senders of unsolicited fax advertisements, RF electromagnetic radiation, Internet spam etc. available. User-friendly presentation. Also has customer advisory documents. (4/4)	Detailed consumer rights information is available. (4/4)	Detailed information on making complaints and investigation procedures is available. Also has information on the current cases and completed cases. (4/4)
10	India	Information is available on various topics but they are in a scattered manner. A user has to put extra efforts to find a certain information. (3/4)	Only a consumer group contact details available. (1/4)	No information except contact details (1/4)
11	Israel	Limited information, including the Numbering Plan details, available. (2/4)	No information (0/4)	No information except contact details (1/4)
12	Jordan	Consumer information under variety of topics available. These include pricing not only for both domestic and international calls, but also for value added services. (4/4)	Detailed consumer rights information is available. (4/4)	Detailed information on making complaints available. Online feedback for is available and that too can be used for making complaints. (3/4)

13	**Lebanon**	Information on telecommunication and data communication services including the respective tariff for each category is available in English and Arabic. Presented in the user friendly manner. (4/4)	No information (0/4)	No information except contact details (1/4)
14	**Malaysia**	There is a link to the web site of the Communications and Multimedia Consumer Forum, which provides a good collection of information a consumer might need to know. (4/4)	Detailed consumer rights information is available. (4/4)	Consumers can make complaints using an online form either in English or Basha Malaysia. In addition complaint hotline phone numbers and e-mail addresses available. (3/4)
15	**Maldives**	Only few public notices are available. (1/4)	No information (0/4)	No information except contact details (1/4)
16	**Mongolia**	Information on National Numbering Plan and Universal access obligation available. (2/4)	Accepts the consumer rights but no details are available. (1/4)	No information except contact details (1/4)
17	**Myanmar**	No Information (0/4)	No information (0/4)	No Information (0/4)
18	**Nepal**	Only little information useful for consumers available. (1/4)	No information (0/4)	No information except for a common feedback form (1/4)
19	**Oman**	Selected information like Numbering Plan, domain name allocation details etc available. (3/4)	No information (Page still under construction) (0/4)	No information except for a common feedback form (1/4)
20	**Pakistan**	A good collection of information useful for consumers is available. They include cellular tariff rates, possible hazards of equipment, information about the QoS services conducted etc. (4/4)	Detailed consumer rights information is available in the form of FAQ. (4/4)	Detailed information on the process of making complaints available. Provides information on what type of complaints a consumer can make, whom to be contacted for different cases, toll free numbers for making complaints and the progress of the previously made complaints. The complaints can be made using a user friendly on-line feedback form. (4/4)

21	**Papua New Guinea**	No Information (0/4)	No information (0/4)	No Information except for contact details (1/4)
22	**Philippines**	Only limited information available. This includes the outcome of the public hearings. (3/4)	No information (0/4)	No information on the procedure of making complaints. However, the contact information and a downloadable standard form for complaints available. (2/4)
23	**Saudi Arabia**	Limited collection of information like numbering system and tariffs available, but still enough room for improvement. (3/4)	Though the web sites do not mention consumer rights per se, it explains in detail the relationship between the user and service provider. (3/4)	A detailed procedure for making complaints available, with contact details. (2/4)
24	**Singapore**	A good collection of technical information useful for the consumers are available, but they are scattered under different headings. Provides information such as the mobile number portability, e-mail marketing, Public Key Infrastructure etc.(4/4)	No information (0/4)	No information except for a common feedback form (1/4)
25	**Sri Lanka**	Detailed information on the relevant topics is available. (e.g. The proposed Calling Party Pay system for telecommunication operations, guidelines for setting up call-centres, Numbering Plan) (4/4)	No information (0/4)	A detailed procedure for making complaints available, with contact details. (2/4)
26	**UAE**	No information available. Although there is a link to National Numbering Plan, it does not work. (0/4)	No information (0/4)	No information except contact details (1/4)
27	**Vietnam**	Limited information, such as domestic area codes, international codes and useful telephone numbers are available. (1/4)	No information (0/4)	No information except for a common feedback form (1/4)

Allocation of marks	4 : Adequate information with good presentation	4 : Adequate information with good presentation	4 : Detailed complaining process details available; complaints can be made online and case histories of the past complaints available.
	3 : Adequate information with poor presentation or slightly incomplete information with good presentation	3 : Adequate information with poor presentation or slightly incomplete information with good presentation	3 : Complaints can be made online; details of the complaining process are available
	2 : Limited Information	2 : Limited Information	2 : Contact details and the details of the process available
	1 : Only the basic information	1 : Only the basic information	1 : No information except contact details or (alternatively) a common feedback form
	0 : No information	0 : No information	0 : No Information and no contact details

Individual NRA performance (Consumer Information)

GRAPH 2:

3. 3. Business Information

This section deals with the information usually sought by the business firms, such as the procedures for obtaining permission to import telecom equipment, licensing procedures and charges, interconnection details. The availability of the on-line and off-line forms was also checked.

TABLE 7:

	NRA	Equipment Certification Information	Market Entry Information	Interconnection Information	Consultation papers
1	**Afghanistan**	Though there is a link, it is not active. (0/3)	Detailed licensing procedures are available. (3/3)	Guidelines are to be introduced.(0/3)	No consultation papers available. (0/3)
2	**Australia**	Detailed information is available, listed under different categories in a user friendly manner. However, instead of giving a list of the approved equipment, the site provides information on the ones that fall into this category. (2/3)	Detailed information is available, in a user friendly manner. Provides information about the regulations, procedures and license fees. (3/3)	The relevant information is available in the site, though they are not directly under any first level link. A user might have to put extra efforts to find the information.(2/3)	Consultation papers per se are not available. But relevant technical and marketing information, which may be derived from the consultation studies are available in other forms. (2/3)
3	**Bahrain**	Little information about the equipment which is already approved, but provides detailed information on the procedures to be followed if one seeks an approval for certain equipment in FAQ format. (1/3)	Detailed information about the licensing procedures, availability of the licenses, applicable initial and renewal charges etc. are available in a user friendly manner. An applicant can submit the applications by e-mail. (3/3)	Some information about the interconnection (including determinations issued by TRA) is available on-line, but not in an organised manner.(2/3)	A comprehensive list of consultation papers are available and can be downloaded from the site. They cover a vast area including carrier pre-selection, interconnection, mobile number portability, national numbering plan etc. (3/3)
4	**Bangladesh**	No information (0/3)	Detailed information on obtaining licenses to provide data communication services available. Radio Frequency charge details are also available. (1/3)	Limited information on interconnection is available in the Telecom policy document. (2/3)	No consultation papers available. (0/3)

5	Bhutan	No information. (0/3)	Guidelines for the submission of proposals relating to the operations and service provisioning for telecommunications and related value-added services available but not comprehensive. (2/3)	No information. (0/3)	No consultation papers available. (0/3)
6	Brunei Darussalam	No information. (0/3)	No information. (0/3)	No information. (0/3)	Only one consultation paper is available. (1/3)
7	Cambodia	No information. (0/3)	No information. (0/3)	No information. (0/3)	No consultation papers available. (0/3)
8	Georgia	No information. (0/3)	Limited information is available in the form of charters, decrees and resolutions. However, this information is incomplete and the presentation is not user friendly. (2/3)	No information. (0/3)	No consultation papers available. (0/3)
9	Hong Kong	Detailed information is available. This includes a complete list of certified equipment in the categories of analogue wireline, digital wireline, payphone and ISDN. The site also provides technical information about the safety of using some categories of telecom equipment. Information is also available with regard to the voluntary and compulsory licensing requirements and producers. (3/3)	Detailed information about the licensing procedures for different categories is available. This covers all the needs of a prospective licensee. Separate guidelines for the application of various categories of licensing are available. Online licensing services are available for selected categories. (3/3)	Detailed information on interconnection policy standards and consultation process is available. The site also provides information on the interconnection agreements between some private operators.(3/3)	Consultation papers per se are not available. But relevant technical and marketing information, which may be derived from the consultation studies are available in other forms. (2/3)

10	India	No information. (0/3)	There is no specific information about the licensing procedures. Information about licensing is available in the form of directives, press releases, consultation papers, recommendations etc in a disorganised manner. This information is far from comprehensive. Presentation is hardly user friendly. (2/3)	Some information is available in the form of press releases, consultation papers etc. Neither organised nor complete. (2/3)	A long list of consultation papers is available. They cover topics varying from mobile number portability, interconnection, satellite radio broadcasting, telecom services in rural areas, Internet and Broadband penetration etc., and there are some papers even on mobile phone theft. (3/3)
11	Israel	No information on the licensed equipment. Technical information about the terminal equipment which should be connected to the telecom network is available. Contact details of the relevant officers are provided. (1/3)	No detailed information on the license procedures. Contact details of the relevant officers are available. (1/3)	No specific information on interconnection. Technical information on the categories of equipment which are approved to be connected to the telecom network is available.(1/3)	No consultation papers available. (0/3)
12	Jordan	Detailed information is available about the standards and requirements of the telecom equipment which are approved. Also has two databases one on the approved equipment and another on the prohibited equipment, so a user can immediately check whether a certain equipment is approved or not. Additional information on the use of the approved equipment is also available. Presentation is in a user-friendly manner. (3/3)	Detailed information about the licensing requirements, procedures etc., are available. This is categories under Fixed Phone, Pay Phone, Paging, Mobile, Radio Phone etc. Presented in a user-friendly manner. Lists of existing licensees and the license fees for different categories are also available. (3/3)	Limited information on interconnection is available. (2/3)	A good collection of consultation papers is available though they are not arranged in a methodical order. The papers cover various topics such as mobile number portability, mobile licensing, Interconnection etc. (3/3)
13	Lebanon	No information. (0/3)	No information. (0/3)	No information (0/3)	No consultation papers available. (0/3)

|					
14	**Malaysia**	The lists of approved and prohibited equipment are not available, but the site provides information and guidelines for applying for equipment clearance. (1/3)	Detailed procedures to obtain class and individual licenses are available. Sample license agreements are also presented. Site provides the lists of licensees under each category.(3/3)	Interconnection information per se is not available. However the site presents useful information for service providers on how to avoid from anti-competitive practices in a highly competitive market.(1/3)	The site provides a good collection of consultation papers. These cover a wide range of topics in both marketing and technical areas. Some of the topics covered include numbering and electronic addressing, universal services provision, and effective use of spectrum and market competition. (3/3)
15	**Maldives**	There is a link for a list of approved equipment, but it leads to a blank page. (0/3)	Only very limited information is available. Apparently the relevant web pages are still under construction. (1/3)	No information. (0/3)	No consultation papers available. (0/3)
16	**Mongolia**	No information. (0/3)	Information about different types of licensing scheme and the number of licensees under each category is available. No information on the fees and procedures. (1/3)	Information about the interconnection procedures and the dispute resolution details available. (2/3)	No consultation papers available. (0/3)
17	**Myanmar**	No information. (0/3)	Only limited information about the licensing procedures for each category, fees validity period etc are available. (2/3)	No information. (0/3)	No consultation papers available. (0/3)
18	**Nepal**	No information. (0/3)	Detailed information on the licensing procedures, fees and lists of existing licensees under different categories are available. Initial and renewal license fees for 22 different categories are presented in tabulated format. (3/3)	A comprehensive document illustrating the interconnection guidelines are available in the site.(3/3)	Only few consultation papers are available. (1/3)

19	Oman	The lists of approved and banned equipment lists are not available, but the site provides license application forms for equipment. These forms also list down the relevant procedures in a user friendly manner. (1/3)	Limited information on licensing and procedures are available for the categories of frequency licensing and class licensing. Names of existing licensees are available for some categories, but no information on license fees. (2/3)	No information. (0/3)	No consultation papers available. (0/3)
20	Pakistan	An extensive list of approved equipment is available. This is extended to the level of brand and model number. The categories covered include DECT phones, fixed telephone Sets, CLI telephone sets, fax machines, PBXs, line protection units, card payphones, wireless equipment, modems,, wireless local loop phone, security devices and cordless telephone sets (3/3)	Detailed licensing procedures for all categories are given with information such as the eligibility criteria, grounds of disqualification, license fees specific conditions and renewal fees. (3/3)	Detailed interconnection guidelines are provided. These include the principles of interconnection, the request, negotiation and approval procedures, dispute resolution, quality issues in interconnection and relevant charges. Presented in a user friendly format. (3/3)	A comprehensive list of consultation papers are available and can be downloaded from the site. They cover a vast area including access promotion regulations, interconnection, mobile number portability, costing etc. (3/3)
21	Papua New Guinea *	No information. (0/3)	No information. (0/3)	No information. (0/3)	No consultation papers available. (0/3)
22	Philippines	The lists of approved and prohibited equipment are not given, but detailed information describing the licensing procedure is available. (1/3)	Information about licensing is available under a separate section as well as under FAQs. The second section is more user friendly. However, the available information is not very comprehensive.(2/3)	No information. (0/3)	No consultation papers available. (0/3)

23	Saudi Arabia	The site mentions about the legal obligation to obtain licenses for the telecommunication equipment, but does not give information about the licensing procedures. Neither provides the lists of approved and prohibited equipment. (1/3)	Detailed licensing procedures for all categories available. These include mobile, data communication, global mobile personal communications by satellite, wireless local area networks, satellite services, public pay telephone services, radio paging services, ISP services, public call office etc. The guidelines are presented in the Q&A format. A list of existing licensees are also available.(3/3)	Only the basic information about the interconnection is available.(1/3)	Consultation papers per se are not available. But relevant technical and marketing information, which may be derived from the consultation studies are available in other forms. (2/3)
24	Singapore	A detailed list of prohibited equipment is available. This is extended to the level of individual brands and models of the equipment. (3/3)	Detailed licensing guidelines are available. The procedures are available under different categories and in a user friendly manner. The categorisation is not straightforward as in case of other NRAs but easy to follow. (3/3)	Detailed information on interconnection is available. This covers the interconnection regulatory framework, existing agreements, dispute resolution procedures etc. This is further supported by a set of information papers.(3/3)	Consultation papers per se are not available. But relevant technical and marketing information, which may be derived from the consultation studies are available in other forms. (2/3)
25	Sri Lanka	List of the categories of terminal equipment which need type approval is available, but there are no lists of approved and prohibited equipment. The procedure to obtain approval for equipment, including custom clearance information is available. (2/3)	Detailed licensing information including policy and procedures is available. The site also has a list of existing licensees under different categories. (3/3)	Detailed information interconnection including the procedures interconnection fees etc are available.(3/3)	Only few consultation papers are available. (1/3)

26	UAE	The Telecom law states that NRA has the authority to control the import of different categories of telecom equipment and the fines for doing the same, but no lists are available. (1/3)	There are links for licensing information, spectrum management policies, list of licensees and licensing tariff etc., but none of these links worked at the time of evaluation. Most probably these sections are still under construction. (0/3)	There is a link for interconnection guidelines, but it does not work. (0/3)	No consultation papers available. (0/3)
27	Vietnam	The site identifies the following categories of equipment should be approved by the government: Terminals connected to the public-service telephone network (PSTN) through double-wire analogue interfaces, fixed automatic telephones, cordless telephone (extended subscriber type), facsimile equipment, external modems, hand-held mobile terminals, GSM terminals, CDMA terminals, PHS terminals. However only little information is available regarding the approval procedures. (2/3)	Licensing information is available in the form of directives, decrees etc. However the information is incomplete and the presentation is not user friendly.(2/3)	No information. (0/3)	No consultation papers available. (0/3)
Note: * The site says PANGTEL does not deal with licensing					
	Allocation of marks	**3 : Adequate information** **2 : Good information, but not complete**	**3 : Adequate information** **2 : Good information, but not complete**	**3 : Adequate information** **2 : Good information, but not complete**	**3 : A comprehensive list of consultation papers is available.** **2 : No consultation papers per se are available, but information derived from the research is available.**

	1 : Limited information (e.g. Only the process) 0 : No information	1 : Limited information (e.g. Only the process) 0 : No information	1 : Limited information (e.g. Only the process) 0 : No information	1 : Only few (one or two consultation papers are available) 0 : No consultation papers

Individual NRA performance (Business Information)

GRAPH 3:
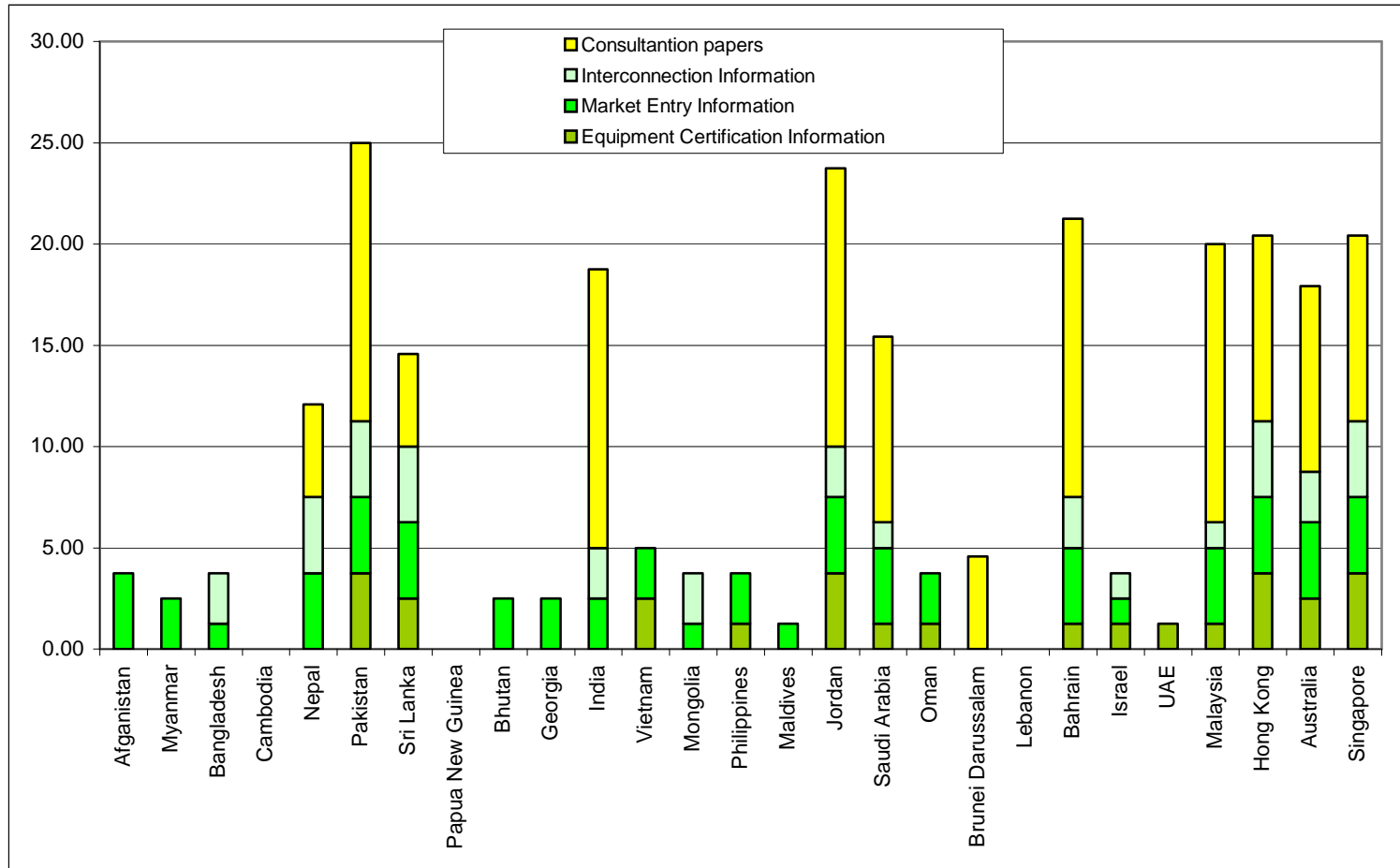
3.4. General Information

This section looks for the general features of the web site as well as the availability of telecommunication news.

TABLE 8:

NRA	Mission statement of the NRA	Future Plans / Long term Vision	Updated with last 3 months	Local languages availability	Links to external sites (local)	Links to external sites (international)	Ease of finding information / Site Map	Organisation Chart / Contact Information	Availability of online forms	Information for job seekers	Telecom Regulatory News
1 Afghanistan		☺	☺		☺		☺		☺		No Information (0/4)
2 Australia	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	Media releases are available under different topics, for the use of consumers. (3/4)
3 Bahrain	☺		☺	☺	☺		☺	☺	☺	☺	Latest telecommunication regulatory news available. (4/4)
4 Bangladesh	☺		☺		☺	☺	☺	☺	☺		No Information (0/4)
5 Bhutan	☺		☺				☺				Only very few news items available. (2/4)
6 Brunei Darussalam	☺						☺	☺			A good collection of news items and press releases are available. They are categorised chronologically. (4/4)

#	Country											Description
7	**Cambodia**				☺	☺		☺				No Information (0/4)
8	**Georgia**	☺		☺	☺			☺				Little information (2/4)
9	**Hong Kong**	☺		☺	☺	☺	☺	☺	☺	☺	☺	A fully pledged news room with press releases, media enquiries, articles, speeches and presentations available. (4/4)
10	**India**			☺		☺	☺		☺			A long list of press releases (Total number =216) available, but they are not in the user friendly manner. A user might have to search hard to find information. (3/4)
11	**Israel**	☺			☺	☺		☺	☺			Press releases are available, but the number is not high. (2/4)
12	**Jordan**	☺			☺	☺	☺	☺	☺	☺		News is available in the format of newsletters and reports. (3/4)
13	**Lebanon**				☺							No Information (0/4)
14	**Malaysia**	☺		☺		☺		☺	☺		☺	A well organised new section is available. It is both comprehensive and user-friendly. (4/4)
15	**Maldives**	☺		☺				☺				A good collection of news items and press releases are available categorised chronologically. (4/4)
16	**Mongolia**	☺		☺	☺		☺	☺				Only few news items are available. (1/4)

#	Country											Remarks
17	**Myanmar**							☺				No Information (0/4)
18	**Nepal**	☺		☺	☺	☺	☺	☺	☺			Few news items and press releases are available. Not properly organised. (2/4)
19	**Oman**	☺		☺		☺		☺	☺	☺		Few news items and press releases are available. Not properly organised. (2/4)
20	**Pakistan**	☺		☺		☺	☺	☺	☺	☺	☺	A good collection of news items, press releases, public notices and publications are available. These are presented in a user friendly manner. (4/4)
21	**Papua New Guinea**	☺		☺		☺	☺	☺	☺			No Information (0/4)
22	**Philippines**	☺						☺	☺			Few news items and press releases are available. Not properly organised. (2/4)
23	**Saudi Arabia**	☺		☺	☺	☺		☺	☺			A good collection of news items, official releases and public hearing reports are available. Good presentation. (4/4)
24	**Singapore**	☺	☺	☺		☺	☺	☺	☺	☺	☺	A good collection of news items, official releases etc are available. Good presentation. (4/4)
25	**Sri Lanka**	☺		☺		☺	☺	☺			☺	A good collection of news items, official releases etc are available. Good presentation. (4/4)
26	**UAE**			☺				☺				No Information. Though there are links, they were not active at the time the study was done. (0/4)

		☺		☺	☺	☺	☺	☺	☺			A good collection of news items are available in local language. (4/4)
27	**Vietnam**											

Allocation of marks for the availability of telecom regulatory news	**4 : A good collection of news, presented well.**
	3 : A good collection of news, but not presented directly. A user might have to put extra efforts to find a certain news item.
	2 : Only a limited amount of news and / or poor presentation
	1 : Only few news items or outdated news
	0 : No news

Notes:

1. In few cases the availability of the responsibilities and duties of the NRA is treated as a mission statement.

2. Whether a site was updated within the last three months or not was checked by the dates available in the site. If the dates were not available, the site was checked for the latest news items and information. If no information in a site suggests that it has been updated within the last three months, the site was treated as one which was not updated.

3. To meet the local language availability criteria the site should have at least few local language pages. In case of Australia, the local language was taken as English.
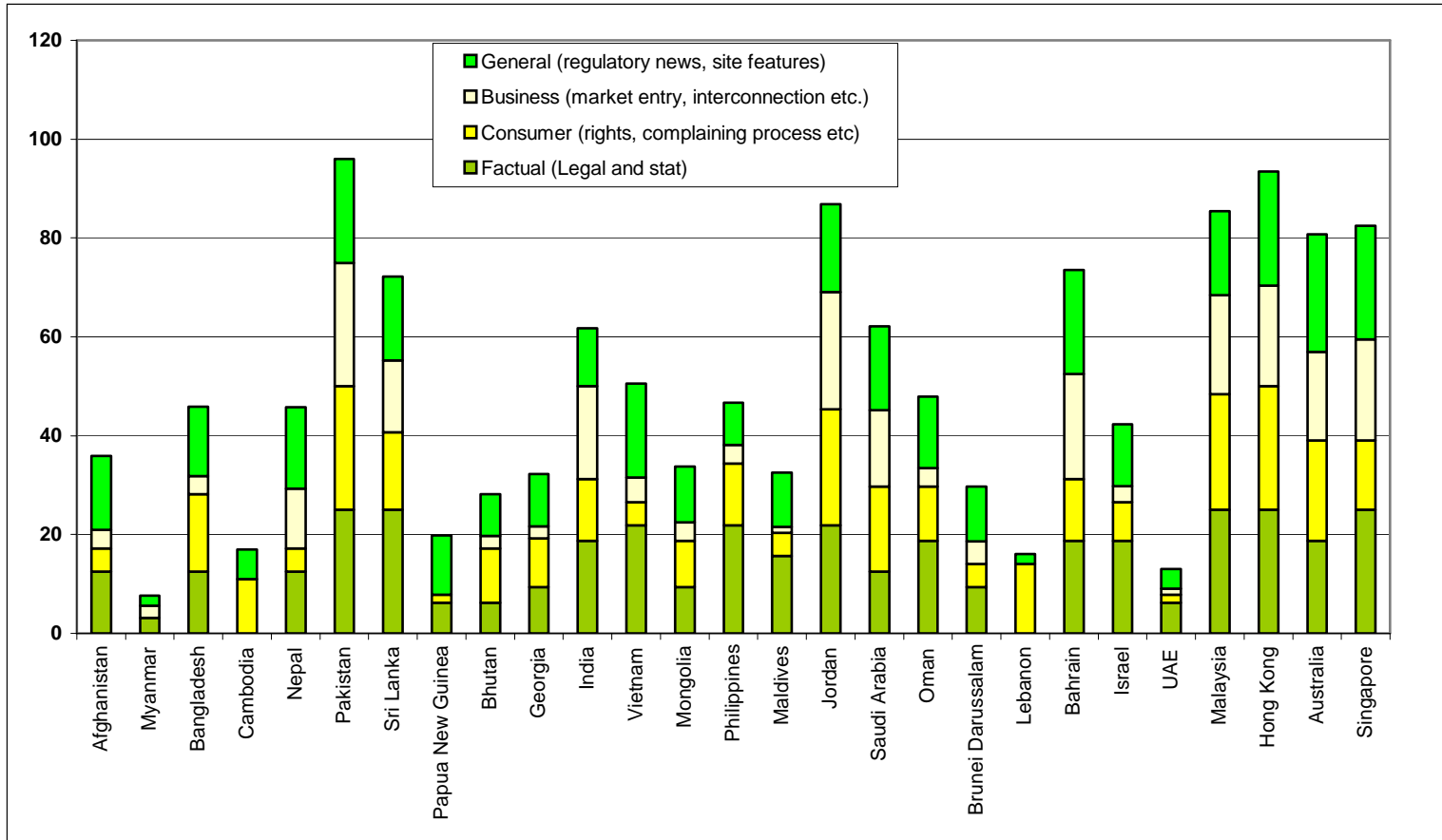
Individual NRA performance (General)

GRAPH 4:
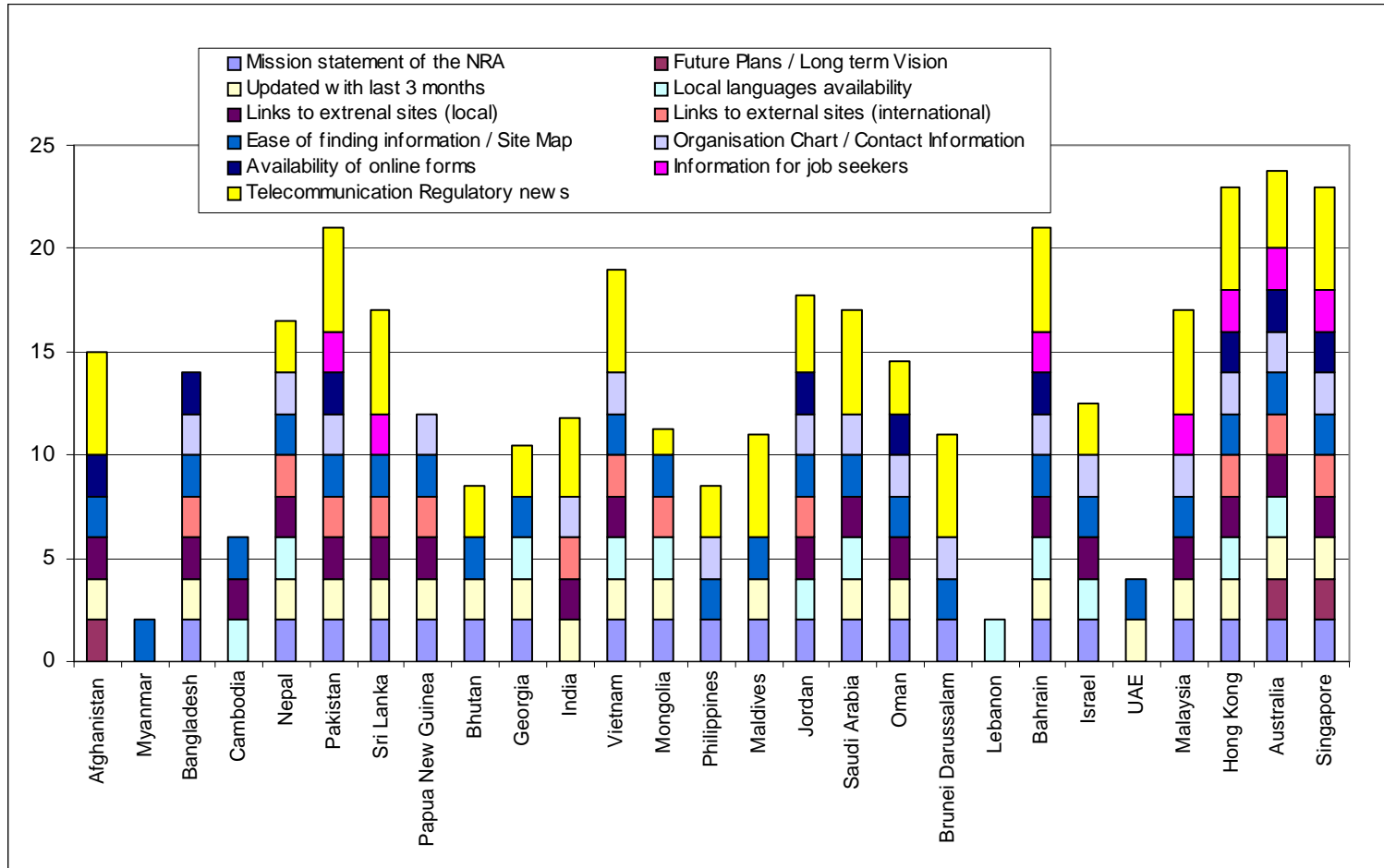
3.5 Final Analysis   Individual NRA performance

GRAPH 5:

Cluster Performance (Final)

TABLE 9:

		Cluster Average	NRAs at or above sector average	NRAs below sector average
1	Cluster 1	30.43	Afghanistan, Bangladesh, Nepal	Myanmar, Cambodia
2	Cluster 2	49.31	Pakistan, Sri Lanka, Vietnam, India	Papua New Guinea, Bhutan, Georgia, Mongolia
3	Cluster 3	45.97	Jordan, Saudi Arabia, Oman	Maldives, Brunei Darussalam, Lebanon, Philippines,
4	Cluster 4	67.28	Bahrain, Malaysia, Hong Kong, Australia, Singapore	Israel, UAE

GRAPH 6:
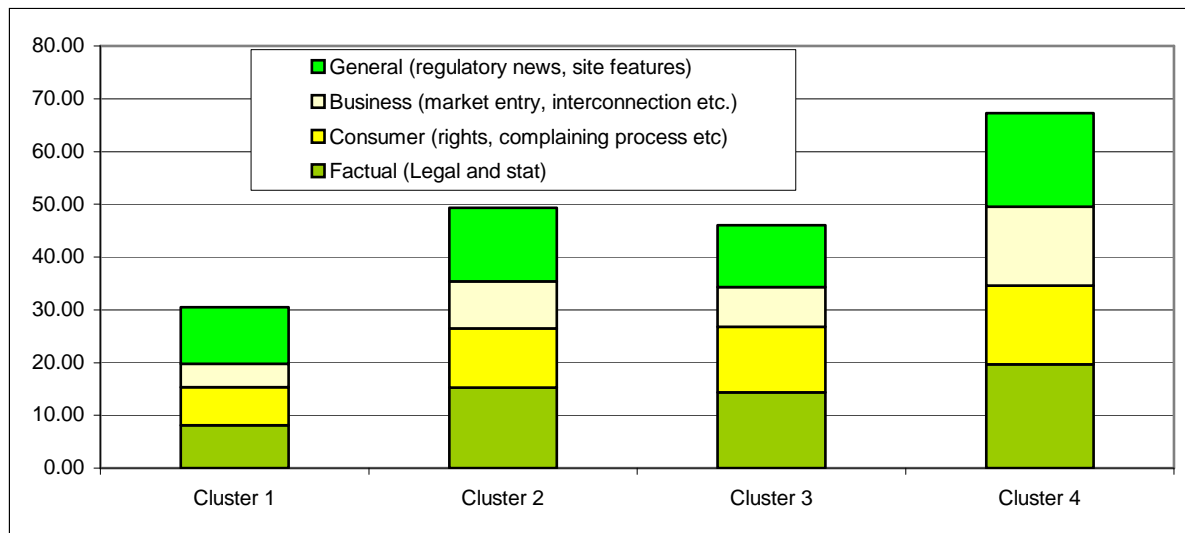
4.0 LIMITATIONS

This web survey is not a fully pledged e-government benchmarking study. It is more a benchmarking of web presence by NRAs to cater the demand of selected stakeholders. These limitations are clear when the methodology to be used in this survey (which is largely based on the methodology used in the WDR study) is compared with the one used in UN study.

The UN study uses several different approaches to develop the E-Government Index for each country. These are:

(i)   A web survey to measure not only the effectiveness but also the progress as well in different types of e-government efforts

(ii)   Onsite visits to selected countries to assess the progress of their e-government programmes

(iii)   A Questionnaire to high-level policy and decision makers, public sector managers, administrators and civil servants working on their country s national e-government programmes.

(iv)   A statistical analysis to determine the infrastructure index (This was based on statistics such as the number of PCs, Internet hosts, Internet users, fixed telephone lines, mobile connections, and TVs for every 1,000 of the population of each country.)

This web survey did not employ the last three approaches, largely due to the lack of resources to complete a benchmarking study of such a massive scope. It was only restricted to the web survey (flowing the example given by the WDR study) but endorses and emphasises the need for a broader study, probably to be done at a later stage.

Please refer the Annexure 1 for a brief description how this study compares with the UN study and the WDR study.

Then there were few other limitations that could not have been avoided. These limitations were the results of some inadvertent assumptions that might not be true always, but without which, the survey could not have been completed.

In an ideal world, to do a comparison, it is necessary to keep the rest of factors equal. This means the survey has inadvertently assumed that all economies covered

by the 27 NRAs are equal, all NRAs of equal size and have equal powers and all of the operate in similar markets. However, in the real world this is hardly the case. For instance it might be easy for a relatively small state to have an effective NRA and effective web site compared to a larger state. Also a richer nation might be in a better position to spend more on the human and technical resources necessary to create / maintain an effective site. These dissimilarities are somewhat addressed by benchmarking the sites against the e-readiness of each country, but even that too fails to address the issue completely.

The issue of the local languages was also prominent. In some of the countries that came under the survey English is hardly used for day-to-day activities. For such countries it might not be essential to have all the information in English. For example, the NRA of South Korea might not find it a dire necessity to publish all information they want to pass to consumers in English. However, due to practical difficulties, in this survey, only the English version of the websites could be benchmarked. When there were no English versions, the countries were taken out of the list. This limitation could be the possible reason for some countries like South Korea to score relatively low marks.

5.0 CONCLUSION

The immediate observation one might do on the findings of this survey is the inadequacy of the number of web sites that had come under review. Out of the 62 independent Asia Pacific economies, only 27 NRA web sites (44%) have been benchmarked. The percentage of the sites that could have been benchmarked if not for the limitations put by local languages is 53%. It can be argued that the situation is slightly better than in Africa where the WDR study only reviews 44% of the NRAs. However, it should also be noted that in Africa only 15% of the NRAs did not have functional web sites, while in Asia, taking the number of web sites under construction too into account, that figure is 29%, or almost the double of the figure. In other words, three out of ten NRAs in the Asia Pacific region do not have a web presence. It might not be fair to attribute this purely to the lack of strategic direction at the top level, sometimes this can be due to lack of resources or other problems, but nevertheless it does not make a good impression.

Another noteworthy observation is that a relatively higher number of web sites do not have fully pledged English versions. It was found that five countries [7] out of the 62 considered do not have English versions of their web sites at all, while South Korea has only a cut down English version. In countries where only a minor percentage of population speaks English and almost all can communicate in another language, perhaps the NRAs might have thought it was not necessary to have English versions of their sites. Or they might have faced difficulties in finding skilled people with adequate English knowledge for the task.

However, the visitors to any NRA site are not just confined to consumers. There are many other stakeholders and some of them might be from outside and might not understand the local language(s). Therefore it is worth for any NRA to have an English version of its web site. In some cases it might be useful if they have versions of other languages too. However, none of the web sites reviewed had versions of other international languages, except for Georgia and Mongolia, which had some parts of their sites in Russian.

Out of the 27 web sites reviewed some presented only the basic information and had not more than ten web pages. (e.g. Myanmar, Cambodia and Lebanon) The other extreme was represented by effective and informative sites such as the ones of Hong Kong, Pakistan, Australia, Singapore and Malaysia. These latter sites are not only informative, but also presented information and other services in a user-friendly

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[7] Armenia, China, Indonesia, Thailand and Yemen

manner. In fact, these sites can be recommended as guides to any NRA that plans to build and effective and useful site of its own.

Following the standards set by the WDR study; this survey too did not evaluate sites based on their aesthetically pleasing features. However, the presentation of information was treated seriously as this is an aspect that makes a site largely useful. If the aesthetic aspects were considered sites such as the ones of UAE and South Korea would have scored more than what they did in this survey. On the other hand, there were also other sites like those of Australia and Singapore which have apparently not taken excessive steps to make their pages aesthetically pleasing, but nevertheless information and had an excellent presentation. Sites of the NRAs of Hong Kong, Malaysia and Pakistan have attempted to strike a balance.

The survey also reviewed some of the non-independent NRA sites such as the ones of Cambodia (Ministry of Posts and Telecommunications), Israel (Ministry of Communications), Lebanon (Ministry of Telecommunications), Myanmar (Posts and Telecommunications Department) and Vietnam (Ministry of Posts and Telematics). The structures of many of these sites were not very different from those of independent NRA sites. However, one may still argue that it is not fair to compare a Ministry site with an independent NRA site given the fact that an Independent NRA, with less bureaucracy and greater flexibility is in a better position to present a more effective and useful site. The findings of the survey do not negate this supposition. Still, few Ministry sites have fared fairly well.

It is useful to check what type of information the web sites presented and what types they did not.

Overall, many sites were good in presenting faucal information, that too legal information. Out of the 27 sites 37% scored full marks for presenting legal information and regulations and 81% of them scored at least half of the marks given. Only 7% of the sites failed to have any sort of legal information. On the other hand, when it came to presenting statistics the performance was not that good. Only 26% sites got full marks for presenting comprehensive statistics, while 56% of the sites got at least half of the marks. About 33% of the sites had no information regarding telecommunication statistics. In this section the second cluster beat the third one, and it is largely due to three sites in the Cluster 2   those of Pakistan, India and Sri Lanka presenting ample statistics about their local markets.

Presenting information useful for consumers was not very impressive. [8]About 30% of the web sites got full marks for presenting information useful for consumers in a

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[8] The possibility of some web sites having this information on their local language versions is not ruled out.

presentable format. Only 11% sites did not posses this information. However, when it came to presenting consumer rights, as large as 63% of the sites had no information at all. Only 26% sites could score more than half of the marks in this sub category while only 19% scored full marks. Information about the consumer complaint procedures too was not available in many sites. Out of the 27 sites 70% had only the contact details or a feedback form to be used for consumer complaints. However, the 7% of the sites that scored the full marks for this category have done well. The Hong Kong site had not only the detailed procedures of making complaints and investigation procedures, but also information on the ongoing and completed cases. The Pakistan site too is worth a special mention. It in addition to providing detailed information on the process of making complaints provides information on what type of complaints a consumer can make, whom to be contacted for different cases, toll free numbers for making complaints and the progress of the previously made complaints. The complaints can be made using a user-friendly on-line feedback form. Overall, there is still enough room for improvement for most of the NRAs. Perhaps this is one area they should pay more attention in future.

Except for information regarding the licensing procedures and tariffs, many web sites also lacked the information usually sought by the businesses too. A total of 64% of the sites could score 2 out of 3 for the availability of the information on licensing procedures and tariffs. However, when it came to restricted equipment information and the information on interconnection the corresponding percentages were 25% and 24%. Having a list of equipment that are prohibited to import to a country is extremely useful for any telecom operator. If the operator has this list he could easily place his orders without first attempting to obtain customs clearance. So it will make a big different if the rest of the NRAs too present the said information on-line through their sites. Many sites presented the outcomes of the consultancy studies they have done in the recent past. Some sites, like the one of India have a massive collection of previous consultancy papers.

Coming to General features, 78% of the sites either had their mission statements or information that is equivalent to a mission statement. This is indeed a good sign. This means a large percentage of NRAs were genuinely attempting to share their justifications of existence with their stakeholders. However, only 11% of the sites have gone a step further to illustrate their long-term visions or business plans. A minimum of 74% of the sites gave clear indications that they were updated within the last three months, while few sites were observed to be updated almost daily with latest news.

Another feature most of the sites lacked was the facility to submit on-line applications. This too an extremely useful feature any web site can offer to its stakeholders. This type of interactivity not only facilitates the interaction between the NRA and its clients, but also helps to get the web site ranked under a more advanced

category. However only 14% of the NRAs reviewed in this survey could be classified as transactional as that was the percentage of sites that offered online application forms for applying for a license. However, many other sites offered off-line application forms which could be downloaded from the site, but the submission is required to be done by snail mail.

Presenting facts in local languages was not very impressive. In the vast majority of the Asia Pacific economies the official language or the langue that used most is definitely not English. However, only 44% of the sites had taken steps to present the local language versions of the sites. The list of countries that did not have local language NRA sites include Afghanistan, Bhutan, Brunei Darussalam, India, Malaysia, Maldives, Myanmar, Philippines, Singapore and Sri Lanka. In some of these cases there could be difficulties in creating web sites in local languages, but for others even that too is hardly an excuse. Many sites were also seen presenting links to other relevant sites. 67% of the sites had links to local sites, in most of the cases government ministries and departments. Links to international sites (such as ITU) were given only in 44% of the sites. About 93% of the sites either had sit maps or similar means to guide easy surfing, while 26% of the NRAs have selected their web site as a means of recruitment. About 63% of the sites had presented organisational charts. Many sites also presented relevant news in the telecommunication field, but the presentation was not too good in some cases. Some NRA sites presented information about the country (e.g. UAE) while some others presented picture galleries. (e.g. Bhutan) These aspects were neither treated positively nor negatively in the evaluations.

Finally, the most important message this survey could pass is that most of the sites that scored lower marks could be improved with little effort. As clearly seen from the tables of comments the NRA sites that were evaluated to be better had scored well in almost all aspects, while those who could not reach that marks have failed in more than one aspect. Perhaps the lesson that most of the NRAs can learn is that instead of reinventing the wheel, they could get some good hints to improve the effectiveness of their sites from the sites of NRAs that were evaluated to be better. The five NRA sites that scored highest marks in the survey can be recommended as guides to the rest without the slightest hesitations.

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West, Darrell (2001) **Urban E-Government: An Assessment of City Government Websites** http://www.insidepolitics.org/egovt01city.html

(All the above sites were active when they were checked at the time the web research was completed on June 15, 2005)

ANNEXURE I : COMPARISON OF THE INTENDED WEB-SURVEY WITH TWO SIMILAR EARLIER EFFORTS

	Benchmarking E-government report (UNDPEPA & ASPA, 2001).	Benchmark indicators for African NRA websites (WDR -Mahan, 2004)	Asia Pacific NRA web survey
1. Objective	Benchmark countries on the progress of their e-government initiatives	Benchmark NRA websites of the African countries for their effectiveness in providing services to their stakeholders	Benchmark NRA websites of the Asia Pacific countries for their effectiveness in providing services to their stakeholders
2 Scope	190 UN Member states	21 out of a total of 47 countries in the African region	27 out of a total of 62 countries in the Asia-Pacific region
3. Country selection criteria	If the country is a UN member state it is considered.	The country should have a NRA and the NRA should have a functioning website	The country should have a NRA and the NRA should have a functioning website (Apart from this, five countries were eliminated from the list because they do not have English versions of the sites. This was done due to the practical difficulty of evaluating non-English sites.)
4. Types of the websites considered for survey	All e-government websites	Only NRA sites	Only NRA sites
5. Country clustering	The countries were grouped into eight clusters purely based on their geographical positions, to do a geographic regional analysis. (North America, Europe, South America, Middle East, Asia/Oceania, Caribbean, Central America and Africa)	No clustering was done	The countries are clustered based on an e-readiness indicator of the respective communities. This is preferred over a geographical grouping, as it can also used to compare the e-readiness of NRAs against the community it serves.
6. Considered type of services	Informational, interactive and transactional	All three were considered but given more emphasis to the informational services.	Follows the same approach used in the WDR study.
7. Methodology	Fourfold. Includes a web survey, face to face meeting with e-government experts and civil officers, a questionnaire and a statistical analysis to determine the infrastructure index.	Only a web survey	Only a web survey

ANNEXURE II: SELECTION OF COUNTRIES FOR THE INTENDED NRA WEBSITE SURVEY   Full results

(The countries that were not considered for the survey are highlighted in yellow.)

|	Country	National Telecommunication Regulatory Authority	Regulator site	English version available? (Y / N / NA / UC)	Considered for survey? (Y / N)	If not reason
1	Afghanistan	Telecommunication Regulatory Board	http://www.trb.gov.af	Y	Y	
2	Armenia	Ministry of Transport and Communication	http://www.mtc.am	N	N	EVNA
3	Australia	Australian Communications Authority	http://internet.aca.gov.au	Y	Y	
4	Azerbaijan	Ministry of Communications	NWS	NA	N	NWS
5	Bahrain	Telecommunications Regulatory Authority	http://www.tra.org.bh	Y	Y	
6	Bangladesh	Bangladesh Telecommunication Regulatory Commission	http://www.btrc.gov.bd	Y	Y	
7	Bhutan	Bhutan Communications Authority	http://www.bca.gov.bt	Y	Y	
8	Brunei Darussalam	Authority for Info-communications Technology Industry of Brunei Darussalam (AiTi)	http://www.aiti.gov.bn	Y	Y	
9	Cambodia	Ministry of Posts and Telecommunications	http://www.mptc.gov.kh/	Y	Y	
10	China	Ministry of Information Industry	http://www.mii.gov.cn	N	N	EVNA
11	Cook Islands	Information not available	NA	NA	N	RINA
12	Fiji	Telecommunication Unit	NWS	NA	N	NWS
13	Georgia	Georgian National Communications Commission	http://www.gncc.ge	Y	Y	
14	Hong Kong	Office of the Telecommunications Authority	http://www.ofta.gov.hk	Y	Y	
15	India	Telecom Regulatory Authority of India (TRAI)	http://www.trai.gov.in	Y	Y	
16	Indonesia	Badan Regulasi Telekomunikasi Indonesia (BRTI)	http://www.brti.or.id/	N	N	EVNA
17	Iran	Ministry of Posts, Telegraph & Telephone	LDNW	NA	N	LDNW
18	Iraq	Ministry of Transport and Communications	NWS	NA	N	NWS
19	Israel	Ministry of Communications	http://www.moc.gov.il	Y	Y	
20	Japan	Telecommunications Bureau, Ministry of Public Management, Home Affairs, Posts and Telecommunications	http://www.soumu.go.jp/	Y	N	NFPS
21	Jordan	Telecommunications Regulatory Commission (TRC)	http://www.trc.gov.jo	Y	Y	

22	Kazakhstan	Telecommunications and Post Dept.	NWS	NA	N	NWS
23	Kuwait	Ministry of Communications	NWS	NA	N	NWS
24	Kyrgyzstan	State Communications Agency	LDNW	NA	N	LDNW
25	Laos	Ministry of Communications, Transports, Post and Construction	NWS	NA	N	NWS
26	Lebanon	Ministry of Telecommunications	http://www.mpt.gov.lb/	Y	Y	
27	Macau	Information not available	NA	NA	N	RINA
28	Malaysia	Malaysian Communications and Multimedia Commission	http://www.mcmc.gov.my	Y	Y	
29	Maldives	Telecommunications Authority of Maldives	www.tam.gov.mv	Y	Y	
30	Marshall Islands	Cabinet	NWS	NA	N	NWS
31	Mongolia	Communications Regulatory Commission	http://www.crc.gov.mn	Y	Y	
32	Myanmar	Posts and Telecommunications Department	http://www.mcpt.gov.mm/ptd/	Y	Y	
33	Nauru	Directorate of Telecommunications	NWS	NA	N	RINA
34	Nepal	Nepal Telecommunications Authority	http://www.nta.gov.np	Y	Y	
35	New Zealand	Commerce Commission	http://www.comcom.govt.nz	Y	N	NFPS
36	Nieu	Information not available	NA	NA	N	RINA
37	North Korea	Information not available	NA	NA	N	RINA
38	Oman	Telecommunication Regulatory Authority	http://www.tra.gov.om	Y	Y	
39	Pakistan	Pakistan Telecommunication Authority	http://www.pta.gov.pk	Y	Y	
40	Palau	Information not available	NA	NA	N	RINA
41	Papua New Guinea	Papua New Guinea Radio communications and Telecommunications Technical Authority (PANGTEL)	http://www.pangtel.gov.pg/	Y	Y	
42	Philippines	National Telecommunications Commission	http://www.ntc.gov.ph	Y	Y	
43	Qatar	Supreme Council for Communication and Information Technology	NWS	NA	N	NWS
44	Samoa	Ministry of Post & Telecom	NWS	NA	N	NWS
45	Saudi Arabia	Communication and Information Technology Commission (CITC)	http://www.citc.gov.sa	Y	Y	
46	Singapore	Infocomm Development Authority of Singapore	http://www.ida.gov.sg	Y	Y	
47	Solomon Islands	Ministry of Transport, Works and Communications	NWS	NA	N	NWS
48	South Korea	Korea Communications Commission	http://www.kcc.go.kr	Y	N	EVNC

49	Sri Lanka	Telecommunications Regulatory Commission of Sri Lanka	http://www.trc.gov.lk	Y	Y	
50	Syria	Syrian Telecommunication Establishment (STE)	http://www.ste.net.sy	UC	N	UC
51	Taiwan	Information not available	NA	NA	N	RINA
52	Tajikistan	Ministry of Communications	NWS	NA	N	NWS
53	Thailand	Post and Telegraph Department	http://www.ntc.gov.ph	N	N	EVNA
54	Timor-Leste	Information not available	NA	NA	N	RINA
55	Tonga	Prime Minister's Office	http://pmo.gov.to	Y	N	NFPS
56	Turkmenistan	Ministry of Communications	NWS	NA	N	NWS
57	Tuvalu	Ministry of Works, Communication and Transport	NWS	NA	N	NWS
58	United Arab Emirates	Telecommunications Regulatory Authority (TRA) General Authority for Regulating the Telecommunications Sector	http://www.tra.ae/	Y	Y	
59	Uzbekistan	Communication and Information Agency of Uzbekistan	NWS	NA	N	NWS
60	Vanuatu	Ministry for Public Works, Communications, Transport and Civil Works	NWS	NA	N	NWS
61	Vietnam	Ministry of Posts and Telematics	http://www.mpt.gov.vn	Y	Y	
62	Yemen	Ministry of Telecommunication & Information Technology	http://www.mtit.gov.ye	N	N	EVNA

Abbreviations:

NA	Not Applicable
RINA	Regulator Information Not Available
NWS	No Web Site
EVNA	English Version Not Available
EVNC	English Version Not Complete
LNDW	Link Does Not Work
UC	Under Construction
NFPS	Not a Fully Pledged NRA site

ANNEXURE III : CLUSTERING OF COUNTRIES ACCORDING TO THEIR E-READINESS (Measured by the number of Internet users for every 1,000 in the population)
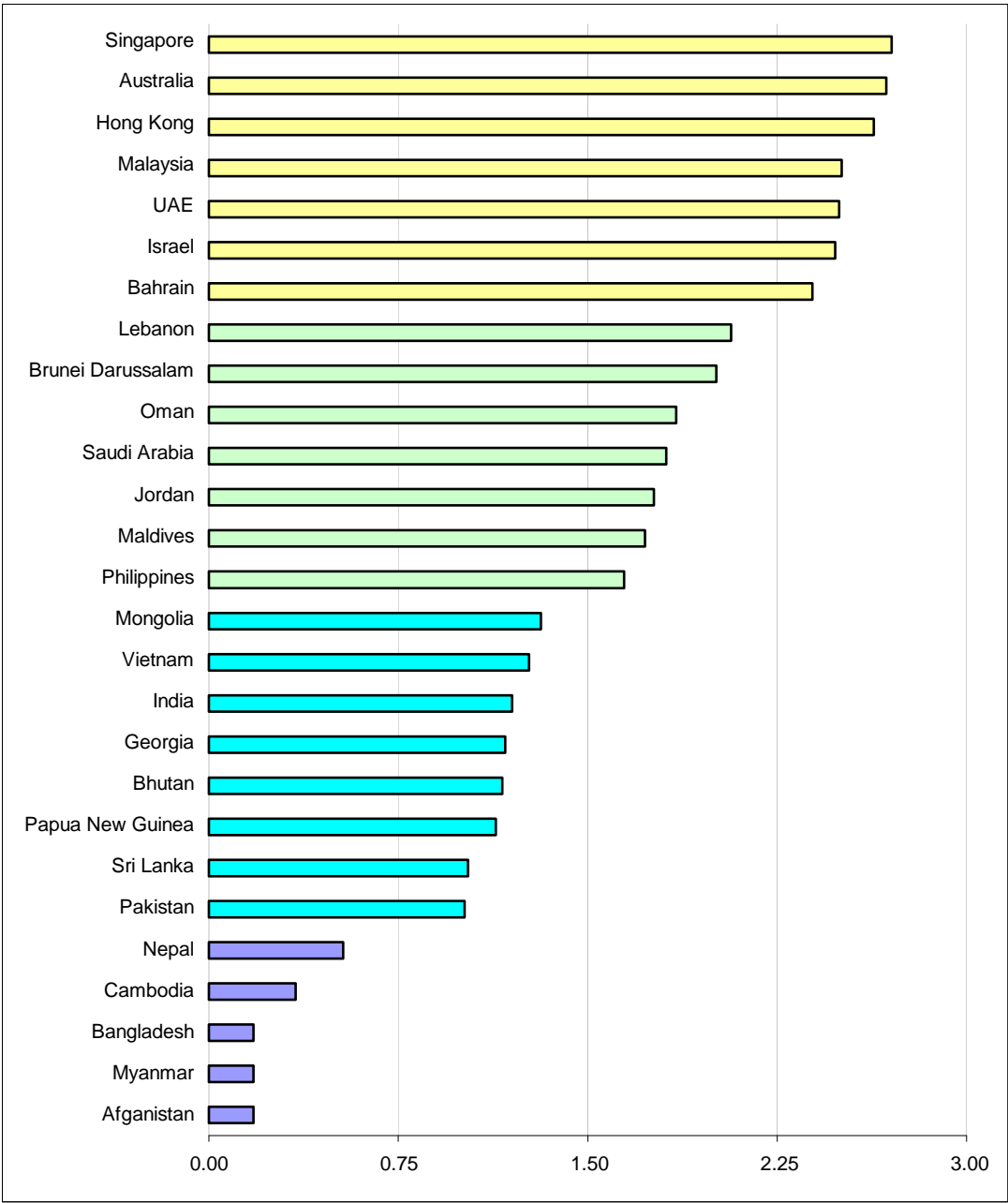
GRAPH III

Selection criteria: Cluster 1 : 0.00   0.75 in log scale
Cluster 2 : 0.75   1.50 in log scale
Cluster 3 : 1.50   2.25 in log scale
Cluster 4 : 2.25   3.00 in log scale