

## Marshall Islands Chamber of Commerce

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### Meeting Minutes

Friday, April 11, 2008

Marshall Islands Resort

Meeting called to order by President Hirobo Obeketang at 12:01 P.M. Approximately 50 members and guests were in attendance. The next regular meeting will be on Friday, May 9, 2008.

- **Minutes** – approved electronically prior to the meeting
- **Treasurer's report** - \$1,626.70 BOG balance
- **Guests**
  - Dennis Momotaro, Senator and Minister of RMI Transportation and Communications (T&C)
  - Wilbur Allen, Secretary T&C
  - Canter Lovin, Communications Director T&C
  - Patrick Chen, Chamber member and NTA Director
  - Hirobo Obeketang, Chamber President and NTA Director
  - David Strauss, Chamber member and NTA Director
  - Tony Muller, General Manager of National Telecommunications Authority (NTA)
  - Yoshi Kaneko, Chief Operations Officer NTA
  - Michael Sawej, IT Manager NTA
  - Colin Allen, Customer Service Manager NTA
  - Ayapa Apuahe, Satellite Engineer NTA
  - Representatives of the American Embassy
  - Representatives of the Taiwan Embassy
  - Gary Sword, E-Pacific software and IT solutions
  - Abacca Anjain Maddison, former Rongelap Senator
  - Grace Leban, RMI Internal Affairs and WAC member
  - Monique Graham, KIO member
- **Chamber President's opening remarks**

We have a new government. We have new Chamber leadership. We have a new NTA Board of Directors. This is a good time for the private sector to partner with NTA to achieve our respective goals. The past is simply that – it's gone. We're focused on today and looking forward to tomorrow. What we do now will determine what we enjoy in the future.

When different organizations get together to achieve common goals it is a good idea to identify all of the important issues. Let's get them on the table and talk about them. At the very least and even if some of those issues don't get solved right away, neither party will then harbor any suspicions about the other.

Our members have put their cards on the table. They have written their questions for NTA. NTA has come here today to respond to those questions. I fully expect that NTA will inform us of their issues. We need to know about them. I encourage all of our members to evaluate NTA issues the way that they think about their own. Let's think about the issues. Then let's help each other to solve those issues.

Chamber members need to help NTA to help themselves.

NTA needs to help Chamber members to help itself.

We have a common goal. We all want to solve the problems that we face.

By law, NTA is a business with owners just like us. If we take issue with that, then let's talk about that with our elected officials. If and until this is changed, NTA needs to make a profit for its owners. We understand that. That's what we do for our owners. Let's move on to address those things that we can improve through cooperation – business to business.

By law, NTA has been granted a monopoly on communications in the Marshall Islands. If we take issue with that, then let's talk about that with our elected officials. If and until this is changed, NTA is the only game in town. Let's deal with that and move on to address those things that we can improve through cooperation.

NTA hires the same people that we do. NTA pays the same taxes that we pay. NTA must follow the same laws that we follow. The NTA cost of doing business is the same as ours. NTA can not give away services for free. And we can't either. Let's not waste each others time by asking for free services. But, let's work together to get more for what we pay.

When we meet and speak with NTA Directors and management, we are speaking with businessmen and women like us. We all want to be good neighbors, but we have a business to operate. Let's help each other do that.

Please join me in welcoming Minister Momotaro, Secretary Allen, the NTA Board and management.

- **Minister Momotaro's brief remarks**

I would like to recognize the Chamber President Hirobo Obeketang, Vice President Mike Slinger, Secretary Jim McLean, and Treasurer Salome Andrike. I would also like to recognize the Taiwan and American Ambassadors. NTA will bring new things to our country. This is an important forum. This will help NTA to come up to another level.

- **Human papilloma virus (HPC) vaccine campaign**

Former Rongelap Senator Maddison introduced members of WAC, KIO, and IA that briefly informed chamber members of a new campaign to reach out to all females in the 12 – 26 year old age bracket regardless of nationality that reside in the Marshall Islands to inform them of the HPC vaccine. HPC is known to cause cervical cancer in women, and there now is a vaccine that will prevent this. This campaign will also ask all businesses to assist in the dissemination of this information.

- **Communications in the Marshall Islands – Business Affairs Chairman Carlos Domnick**

I would like to thank Minister Momotaro, Secretary Allen, and NTA General Manager Tony Muller for answering our invitation to come here today. Communications is very important to businesses in the RMI. We're a geographically isolated country. There is an urgent need to move on the underwater fiber optic cable.

- **NTA Director and Business Affairs Committee member David Strauss**

#### LIST OF QUESTIONS, COMMENTS TO MINISTRY OF T&C AND NTA

##### *WiFi Cards*

1. The yellow paper cards for wi-fi internet tear easily and often the password tears off making the card useless. What has NTA planned to fix this?
2. The wi-fi cards cannot merge and customers find that very inconvenient as downloads can be interrupted or lost if time has run out. What can NTA do about this?
3. If you have 6 or 7 minutes remaining on the wi-fi card, it will not let you re-open your session and you lose that remaining time. Why is this and what can NTA do about this?

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##### Answers:

We have WiFi "hot spots" at RRE, Mako, Long Island Hotel, and the Airport. Soon we'll have additional coverage at RRE and Payless. We have a new plastic card that should eliminate the torn passwords. We encourage users to purchase larger capacity cards before starting a large download. If a user attempts to download a file that will require more time than is left on the card, the download won't finish. We've spoken with the publisher that wrote the software that we use about the problem of not being able to access the monitoring window to sign off. The next version will fix this problem. We're looking into adding more payment gateways such as PayPal and credit cards.

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##### *NTA Technical Support and Service*

1. Please explain NTA's concept of customer service.

2. Are long distance telephone operators available 24 hours a day? If not, why not? What happens if someone has a medical or other emergency after hours?
3. Some of us are concerned about NTA technical support. What is NTA doing to improve the quantity and quality of its technical support?
4. If NTA decided that it needed to import technical talent, would it have a problem with the current Labor and Immigration laws? If yes, what would NTA recommend to the Nitijela regarding changes to those laws?
5. Why does it sometimes take weeks for NTA to fix a line problem?
6. Is there technology available for linemen that would allow them to determine that a copper line is in use before they disconnect it or use it for some other purpose? This appears to be a constant problem in the Uliga area. It is almost as though whenever we see an NTA repair guy working at one of the boxes we know that one of our voice lines will mysteriously stop working.
7. Why hasn't NTA put an electronic version of the telephone directory on its own Website for free customer access? One of the benefits of this would be that the listings would be more current. Additionally, it could save NTA money by not bothering the telephone information operators as much.

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Answers:

Our customer service policy is measured in reaction time and augmented with training. There used to be 24 hour a day telephone operator support. The prior management of NTA eliminated the third shift after reviewing the results of a performance audit. We haven't had any problems yet with Immigration and Labor laws when we import labor. Our copper cable is 17 years old. Our wires are exposed to the elements at many of the above ground pedestals. There is a known vandal in the Rairok area. We're working on the cables in the Uliga area. We have one more to fix. We will place an electronic version of our telephone directory on our Web site.

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### *Cell System*

1. How much money has NTA spend on all of its recent "upgrades" to the cell system?
2. Why have these upgrades failed to improve service?
3. Why can't NTA do a weekly test of cell phone services...something like take ten different brands of phones and attempt ten calls on each to another cell phone and ten calls on each to a land-line, then ten calls from a land line to each cell phone. Then NTA could report each week in the newspaper on the percentage of calls that went through, and the percentage that lasted for at least two minutes. This would give NTA some hard numbers to try to improve upon.
4. Can cell phones send and receive text messages abroad? If yes, are there any things

that cell phone users elsewhere can do that we cannot do yet? If there are some things that we cannot do, will this change in the near future?

5. In some other places, experts, law enforcement, and legislators are becoming concerned with the danger involved with people using cell phones while driving a motor vehicle. What does NTA recommend to its cell phone users in this regard? If NTA has a strong position on this, does it plan to recommend that the Nitijela address this issue?

6. Why are cell phone ring tones and other sounds so loud?

7. How many outer islands are serviced by NTA cell networks? Is this service being subsidized by Majuro or Majuro/Ebeye subscribers? If so, at what cost? Why was such a costly system installed on atolls that have limited disposal income to cover annual operation costs of the cell system?

8. NTA is mandated by Act to provide telecom communications for the entire Marshall Islands. When will it provide this basic service to all inhabited atolls? How does it expect to recover its cost to provide this service to these atolls.

9. In most places, people using cell phones must pay the costs of their usage. Here, however, airtime must be paid by the person placing a call TO a cell phone. Why is this?

10. What is the reasoning behind NTA's policy of billing land lines for calls made to cell phones, and charging land line customer a one time fee of \$5.00 and a monthly fee of 2.00 to block calls to cell phones? This is not fair to land line users, be they Government offices, business, or private users.

11. Why are land lines users required to subsidize the cell serve? I can see subsidizing outer island radio calls (i.e., an essential service for those who cannot otherwise afford it), but cell service is a luxury. Why are land lines users being forced to subsidize cell phones? Why can't NTA simply charge the cell customers for incoming and outgoing calls at a rate sufficient to cover the cost of cell phones and a reasonable profit? There is no technological problem in charging cell phones for incoming calls. The present policy makes no sense. There is no marketing justification for this cross subsidy. NTA's illogical answers are very frustrating.

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Answers:

[Secretary's note: the referenced PowerPoint presentation is abstracted and appended to the minutes]

Ayapa Apuahe presented a PowerPoint presentation showing the technical details of the NTA GSM cell phone system. GSM stands for global system for mobile communication. Over two billion people worldwide use this standard. We introduced this system in 2005, and we've experienced a large growth in usage. We have this installed in Majuro, Ebeye, Wotje, Jaliut, Rongelap, and Kili. We've installed three upgrades in Majuro and one in Ebeye. We have nearly 10,000 customers. Most of the problems relate to signals traveling over water. Especially during periods of high waves, this can result in call cancellation or

noise on the line. There is another problem relating to an internal electronic interface that we're investigating to see if it will be cost productive to upgrade that component. We don't have a good answer regarding what kind of cell phone is best. Some of us like Nokia cell phones. Your experiences may differ from ours. You can send and receive text messages internationally. NTA doesn't have a formal position on the advisability of driving while using a cell phone. Majuro and Ebeye subscribers are subsidizing Wotje and Jaliut. The Cabinet asked us to provide service to Wotje and Jaliut because there are high schools there. We decided to service Rongelap and Kili. It costs ten cents to access the GSM network, and it doesn't make any difference if the call originates from a cell phone or from a land line to a cell phone. The GSM network is used in both cases. It is customary for a caller to pay for a call. If you wish to purchase time for another cell phone user, you can dial 221 or 223 to do that. We'll look into automatic cell phone notification when stored minutes are about to expire.

Secretary's note: A majority of those present agreed that the person originating a call should pay for the call.

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### *Internet*

1. Can an individual purchase his own earth station and directly subscribe to Internet services from one of the available satellites for his own personal use? If not, what in the law expressly forbids this? If yes, what is required, and how do we do it?
2. Can an NTA customer resell NTA Internet access? If so, what are the requirements?
3. What is NTA doing to beef up its data distribution network on Majuro?
4. How much bandwidth does NTA currently subscribe to? How close is NTA to utilizing all of this bandwidth? What is the "reorder" point when NTA needs to get more?
5. We've noticed in the March 27th Marshall Islands Journal that NTA has extended the cost reduction for Internet service. Will NTA return to the previously higher prices in the future? [Please do not merely repeat that it has been temporarily extended to April 30, which we know.]
6. If one of NTA's "dedicated line" Internet customers wanted to host his own Web site, he would need a "dedicated IP address" that could be registered on the Internet's global domain servers so that people in other countries could reach his Web server. What is the procedure to obtain a "dedicated IP address?" How much does it cost? How long does it take to get one?
7. In the past, NTA outsourced Internet Access to Talaya in Guam. Then, NTA repatriated that lost income by bringing Internet access back to the Marshall Islands. NTA has enjoyed significant and increased profitability by doing that. Wouldn't this also be true if NTA were to repatriate the lost revenue from the outsourced Web hosting that many of its customers have done? If it is true, why hasn't NTA already done this? If NTA is planning on doing this, when will it be available? How much will it cost? What technologies will be supported? Java? JavaScript? PHP? ASP.NET? AJAX? Microsoft

IIS? Apache? Microsoft SQL Server? Open source SQL Server such as MySQL? Will NTA offer separately priced Website design? Will NTA offer "drive-in" uploading of data especially for large content?

8. What is NTA doing to fix the problem with email communications to certain domains? Since about July/August last year, we have had to utilize an alternate email service (Gmail, Yahoo, etc.) to allow communications with Kwajalein Range Services (KRS) which uses a ".mil" domain. Is it true that the "ntamar.net" domain is "black-listed" by certain other domains? Also, there is evidence that emails from certain domains are not getting through to us. Why is this happening and what is NTA doing to solve this?

9. Nearly every month, Microsoft pushes software updates automatically to the millions of computers around the world that use its operating system software. Most of the computers in the Marshall Islands use one of the Microsoft operating systems. This is done on the second Tuesday (US time) every month. What percentage of NTA bandwidth especially off hours is consumed by nearly all of the computers in the Marshall Islands when they compete with each other, sometimes for a week or longer, to receive large Microsoft updates? Has NTA considered downloading these updates and making them available as a public service to its customers?

10. Please explain the various junk, junk email, Virus, VIRUS, could\_be spam, etc. folders – what they are used for, can we delete them, or what should we be doing with them?

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Answers:

An individual or organization can operate his own earth station to access the Internet if permission is obtained from the Cabinet. CMI and USP have done this. Contact NTA to resell Internet access. Currently RRE, the Flame Tree, and MIR are doing this. We currently have 15 mbps of satellite bandwidth, and we're utilizing 70% of that. When we reach 90% we order more bandwidth. We cannot commit to keeping Internet access rates discounted. We did this with the expectation that customer volume would increase. It hasn't. Our current budget for electricity is \$24,000 a month and not the \$30,000 a month that we'll have to pay for the remainder of this year due to the recent MEC price increase. Any leased line user can locally host his Website now. Each of this type of customer already has 6 dedicated IP addresses. We have the ability to host Websites, but we only support those technologies that run on UNIX servers. A management decision is pending to launch this service. There is no problem with the .mil top level domain. Traffic is flowing to that. The problem is with SMDC.Army.mil. We don't know who to contact about this. There apparently is a separate organization that controls this domain. We suggest that customers in this domain who are having a problem reaching us request that their controlling organization correct this. This problem originated when we changed our IP addresses. Previously those addresses were on commonly used "block lists" to suppress spam. SMDC.Army.mil has apparently not removed our new IP addresses from their "block list." We do not plan to download and make available Microsoft software updates. Except for "Could be Spam," email client programs such as Mozilla and Outlook Express create folders on our email server. You can remove any of these that you want by setting your user preferences.

Questions and comments from the floor:

1. Tom Maus will contact Kwajalein technical personnel and put them in touch with Michael Sawej.
2. Carlos Domnick asked why we don't use the .mh country domain name. The Internet Corporation for Assigned Names and Numbers (ICANN) has had specific names associated with our use of this domain. We're in the process of changing that so that they have titles and not names. This has prevented us from using this domain because there are staff changes.
3. Al Fowler asked why he cannot receive email with attachments from only the Ministry of Finance. At the moment it isn't clear who handles the technical support for MOF. The previous technical person left the country.
4. Don Hess asked when CMI will be able to get 1024 MB in bandwidth. They have been waiting since last October. Bandwidth was recently increased. This can be done now.
5. David Strauss reported that NTA is considering installing a special high speed line to the NTA lobby so that people can bring in a notebook computer and upgrade it quickly with large downloads.
6. Giff Johnson asked if NTA will notify customers when problems occur. Yes.

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*Television*

1. When will the residents of Ajeltake have access to subscription television?
2. Why is NTA planning to compete with MBC, when no one is allowed to compete with NTA in telecommunications? Why go into business outside its mandated role in the Act when it has not met the existing needs of Telecommunications to all the Marshall Islands?
3. Wireless TV -- Why bother? I heard NTA already spent \$1 million on this. Does it really believe its "business model research?" I don't really remember how to play poker, but the worst thing to do is to throw good money after bad...writing off \$1 million now is better than wasting another \$3 or \$4 million and wrecking one successful private enterprise.

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Answer:

Television is currently being reconsidered.

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*Fiber Optic*

1. Has NTA done a cost study on how it expects to repay the loan required for the Fiber to Majuro and, if so, what will be the effect on current rates for internet and overseas calls? What user numbers is this based on in relation to the current number of high speed internet customers?
2. What charges will still have to be paid for NTA to use the fiber network to the rest of the world?
3. Will NTA still have to continue to pay its annual charge for Satellite regardless of the Fiber optic cable?
4. What plans does NTA have for delivery of the high speed internet to customers given the inherent limitations on the existing copper network?
5. Has NTA identified the cost to upgrade its existing system and delivery mechanisms to customers? So, what is the real expected cost of the whole fiber endeavor?
6. The history of submarine cables is littered with breaks from anchors, sabotage, and geologic phenomena. The fiber linking Majuro is to pass through some of the most active geologic areas in the world such as off the coast of Guam. Modern systems are configured as loops, not "point to point" as in the Majuro-Kwaj segment. So, there does not appear to be built in redundancy in what is proposed. What happens if there is a break in the cable between Majuro and Kwaj? Will the entire segment have to be scrapped? What backup systems will be in place in case the fiber fails?

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Answers:

The NTA Board reviewed all of these questions. There are very large costs involved. There are some existing contracts that have many years to run yet. And we will have to continue to pay our present satellite costs even with the fiber optic cable. Our consultant in this matter, Matt Link, will arrive on the 27<sup>th</sup>. There will be a special Board meeting to discuss this with him. Cabinet will be involved. We'll also try to have him speak with the Chamber's Executive Committee. We note that Japan is doing R&D on broadband satellite, so there appears to be an alternative. We understand that the FSM has committed to this.

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*Miscellaneous*

1. What is the status of the two acts that were before the Nitijela regarding privatizing NTA. What is NTA's comments on these two acts, are these acts feasible?
2. What does NTA see as Marshall Island private sector involvement in its business? Are there real plans to privatize any of its operations?
3. Is the high cost of fuel affecting NTA?

4. Is the high cost of electricity affecting NTA?
  5. Some time ago, one of the satellites over the Pacific "went dark" totally disrupting NTA off island traffic of voice and data. Since that time, has NTA made any changes to preclude a similar thing from happening?
  6. What secret projects is NTA working on that will delight its customers?
  7. Does NTA have any long term commitments with one or more satellite providers that are proving to be costly in today's market? If yes, when will these commitments end?
  8. Internet cable -- I know people are a huge fan of this, but it needs more study to see if its really worth it. We could have small satellite systems (called V-Sats) that are pretty high capacity but they aren't allowed only because NTA has the monopoly. You could fund quite a few of those for the cost of the cable. But judging from NTA's wireless TV study, you'd need an independent cost-benefit analysis, rather than guesswork. We could have high speed internet (the real stuff, not what NTA says) for much less than we're paying for the turtle service now. Each school could have a satellite (and the outer islands, too.) If the cable comes and it's smartly financed, then great, but if NTA just remortgages itself, will it be any different than the earth stations twenty years ago?
  9. I heard NTA was working on the radio-based e-mail for the outer islands...this is like trying to give everyone a betamax. The V-Sats I talked about above work and give high speed internet to the outer islands in the Solomons...no reason it wouldn't work here. They've even set them up to pay for themselves (ANZ started outer island banking there and pays a chunk of the costs).
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Answers:

Our previous earth station has been refurbished and will be pointed at another satellite to provide backup in the event that the satellite that we presently use has a problem. Some of our contractual obligations expire in 2015. Most of the contracts that we make now are for only three years. We are not working on radio-based email.

Questions and comments from the floor:

1. Karen thanked NTA for providing WiFi access to yachties. She asked if NTA would extend credit for cell phone and WiFi use for preferred customers. NTA will look into this. She expressed strong support for installing the fiber optic cable referring to it as "the future of this country."
2. NTA will send you your monthly bill by email if you request that.
3. NTA did a customer survey two years ago. It will look into doing another one.
4. At present the government will not sell all of its NTA stock. But that subject can be reconsidered.

5. There was a problem in the “247” exchange this week that resulted in some phones ceasing to operate. This has been fixed.

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- **NTA Director Patrick Chen**

Bank of the Marshall Islands has purchased NTA stock. I would like to encourage all of the businesses in the Marshall Islands to purchase NTA stock.

- **Secretary’s note**

In answer to the question of Marshallese citizens being able to obtain a US Social Security Number in the Marshall Islands, a printed copy the “Status of the Citizens of the Freely Associated States” was made available to all attendees. This document clearly explains that US Social Security numbers can only be obtained in the US. This document can be downloaded from:

<http://www.yokwe.net/index.php?name=News&file=article&sid=2074/>

Meeting adjourned at 2:15 PM.

Minutes prepared by:

Jim McLean

## **Marshall Islands National Telecommunications Authority GSM Network Presentation**

### **Marshall Islands Chamber of Commerce meeting**

**April 11 2008**

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#### **GSM Network Overview**

- **GSM** is an acronym for Global System for Mobile communication. It estimated that 82 % of the global mobile market uses the standard. GSM is used by over 2 billion people across more that 212 countries and territories.
- A GSM network is made of the following:
  - MSC ( Mobile Switching Center)
  - BSC ( Base Station Controller)
  - BTS (Base Station Transceivers)
- Functions of each components:
  - MSC: - calls switching and billing
  - BSC: - controls the BTS and passes calls between BTS and MSC
  - BTS: - Provides the air interface to the cell phones
- A BTS is made of number transceivers and these can be either divided in sectors or omni directional depending on the type of GSM antenna used.
- These transceivers are call TRX.
- One TRX has 8 voice channels
- Every time a call is made on the cell phone, the call occupies one of the traffic channels.

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#### **GSM Network Capacity**

- Since the introduction of GSM in 2005, the network has grown significantly. The network growth was driven by the customer base and their usage.
- As to date, NTA's GSM network exists in the following areas:
  - - Majuro
  - - Ebeye
  - - Kili
  - - Jaluit
  - - Wotje
  - - Rongelap
- From the above sites, Majuro and Ebeye continue to grow as more and more customer subscribe to the system.

- Since the introduction of GSM, there have been three Major upgrades in Majuro and one in Ebeye. We believe that we will continue to upgrade as the customer base increases

## GSM Network Capacity

### Majuro

<b>BTS Sites</b>	= 7
<b>Total # TRX</b>	= 49
<b>Total traffic channels</b>	= 354
<b>Total system Erlang/hour</b>	= 240.85
<b>Total subscriber capacity</b>	= 9634
<b>Used traffic Erlangs</b>	= 189
<b>Used subscriber capacity</b>	= 7800

### Ebeye

<b>BTS Sites</b>	= 1
<b>Total # TRX</b>	= 9
<b>Total traffic channels</b>	= 7
<b>Total system Erlang/hour</b>	= 2.9
<b>Total subscriber capacity</b>	= 116
<b>Used traffic Erlangs</b>	= 2.5
<b>Used subscriber capacity</b>	= 100

### Rongelap

<b>BTS Sites</b>	= 1
<b>Total # TRX</b>	= 1
<b>Total traffic channels</b>	= 7
<b>Total system Erlang/hour</b>	= 2.9
<b>Total subscriber capacity</b>	= 116
<b>Used traffic Erlangs</b>	= 1.2
<b>Used subscriber capacity</b>	= 48

### Jaluit

<b>BTS Sites</b>	= 1
<b>Total TRX</b>	= 1
<b>Total traffic channels</b>	= 7
<b>Total system Erlang/hour</b>	= 2.9
<b>Total subscriber capacity</b>	= 116
<b>Used traffic Erlangs</b>	= 2.5
<b>Used subscriber capacity</b>	= 100

## Wotje

<b>BTS Sites</b>	<b>= 1</b>
<b>Total # TRX</b>	<b>= 1</b>
<b>Total traffic channels</b>	<b>= 7</b>
<b>Total system Erlang/hour</b>	<b>= 2.9</b>
<b>Total subscriber capacity</b>	<b>= 116</b>
<b>Used traffic Erlangs</b>	<b>= 2</b>
<b>Used subscriber capacity</b>	<b>= 80</b>

## Kili

<b>BTS Sites</b>	<b>= 1</b>
<b>Total # TRX</b>	<b>= 1</b>
<b>Total traffic channels</b>	<b>= 7</b>
<b>Total system Erlang/hour</b>	<b>= 2.9</b>
<b>Total subscriber capacity</b>	<b>= 116</b>
<b>Used traffic Erlangs</b>	<b>= 4</b>
<b>Used subscriber capacity</b>	<b>= 160</b>

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## GSM Network Problem

- The communication between the cell phone and the TRX in the BTS site are done using Radio Frequencies (RF). RF is comprised two elements, which is the electric field and the magnetic field. This is the fields that polarized the air particles which travel through the air carrying the GSM signals.
  - Since the shape of Majuro atoll is like a doughnut, the RF signal refracts/reflects from the sea, from both sides of the island, lagoon and ocean side. These refracted/reflected RF signals meet with the good signal that is not being refracted/reflected. When these two signals combine at the cell phone handset or the BTS, they will either cancel out or otherwise it will cause out wanted noise in the GSM system. That is way sometimes a calls drop in conversation or the calls are noisy.
  - The situation is worse when the sea is rough.
  - There is a fixed to this problem and we are working on it. This kind of problem can not be fixed in a short time. The problem will be fixed by taking measurement at different location during different time of the day. This will go on for several months before a conclusion can be made. Once a conclusion is made, the network will be re-configured to minimize the effect, note that we can not eliminate this natural phenomenon.
  - The same phenomenon exist between Ebeye and Kwajalein.
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## **GSM – PSTN PROBLEM**

- We acknowledge that, there was a problem for calls between GSM and PSTN (fix line). We have minimized the problem. However, a permanent fix to this problem, would require replacing the current PSTN switch with a higher class PSTN switch. We are currently using class 5 PSTN switch.
  - This would be a major change in the network and as such, we are analyzing all financial and technical aspects of the possible change. Until such a time, it is technically and financially proven to be viable, the change will be done.
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## **FUTURE PLANS**

1.0 Design and planning is in progress for a fully mesh V-SAT system for the outer islands. These system is intended to the following Tele-center services as listed below:

- Telephone
- Fax
- Internet
- Pay phone

The project will be implemented in stages.

Enewetak and two other sites can be implemented in the first stage.

It should also be noted that, the sites that have power generation may be implemented earlier then the other that do not have power generation.

2.0 Install a BSC in Ebeye and upgrade the current capacity from S333 to S444

3.0 Install a new GSM repeater in Gaugeegau

4.0 ncrease tower Height in NTA HQ

5.0 Increase tower height in Mako building BTS site

6.0 Increase tower height Ajeltake

7.0 Provide international roaming

8.0 Provide GPRS, will provide email and internet access from cell phones

9.0 Provide wireless local loop telephone services in areas where cable is impossible

10.0 Provide Point to multi-point internet backhaul to replace copper cable

- Note: All the above plans will depend on NTA's board approval.
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## **ANSWER TO QUESTION CELL SYSTEM**

- Question # 1: Considered confidential information
- Question # 2: Service has actually improved in terms of the amount of traffic and number of subscribers that can access the network. And NTA is continues to address areas in Majuro where demand is exceeding capacity. Also we are

continuing to evaluate training and staff needs to meet the increasing network size. NTA's Majuro has increased in size almost three fold since operation began a few years ago.

- Question # 3: NTA is implementing measures to improve quality of service including more staff training and comprehensive operations and maintenance practices.
  - Question # 4: Cell phones can send and receive message abroad. Since NTA don't roaming arrangement, the text messaging abroad is done through each cell operator domain. Eg, if someone in Manila send a text message to 455 9116 at number Majuro, he would enter in the cell phone as 692 [4559116@cell.ntamar.net](mailto:4559116@cell.ntamar.net)
  - Question # 5: NTA always recommends safety first. However, this is an issue address directly by our Government and Nitijela
  - Question # 6: Its at individual choice, the volume can be adjusted on the cell phone itself
  - Question # 7: NTA has deployed wireless systems on four outer islands and has plans to implement services to the other outer islands. It is imperative that all of our outer islands communities have telecommunication services – it is essential lifeline. The system we deployed to date was the most cost effective solution given the size of each outer island. To this end we have worked closely with the RMI Government to work out assistance for deploying these systems. NTA is also looking at new technologies for providing the terrestrial portion of the service (such as voice over WiFi and Wimax that may prove even more cost effective.
  - Question # 8: Answered in question 7
  - Question # 9: There a few places in the world (such as United States) where the cell phone user pays “all”. In most countries, the initiator of the call pays regardless of whether the call originate from a land line phone or a cell phone. Our pricing model is base on the latter because we feel it is more practical and fare. Further landline customers do not subsidize the cell network, pricing is base on the premise that whoever accesses the cell network (landline or cell) is charge an access fee
  - Question # 10: Answered in question 9
  - Question # 11: Answered in question 9
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