UNITED NATIONS
Office for Outer Space Affairs

United Nations/United Arab Emirates High Level Forum "Space as a driver for socio-economic sustainable development" 20 – 24 November 2016

GOVERNMENT OF MONGOLIA
INFORMATION TECHNOLOGY, POST
AND TELECOMMUNICATIONS AUTHORITY
WWW.ICT.MN

SPACE TECHNOLOGY IN MONGOLIA

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National facts

Surface area	1,564,000 sq.km
Population	2,965,000
Capital	Ulaanbaatar
Language	Mongolian
Main religions	Buddhist (53%)
	Shamanist (3%)
	Muslim (3%)
	Christian (2%)
Type of government	Parliamentary democracy
Government	13 Ministries
	21 Agencies
Monetary unit	togrog/tugriks (MNT)

Social and governance indicators — rank/total

	rank/total
Human Development Index (rank)	108/187
Ease of Doing Business Index (rank)	76/185
Corruption Perceptions Index (rank)	94/176
Press Freedom Index (rank)	98/179

Foreign trade — 2012

Main export partners (%)		Main import partners (%)	
China	90	China	38
Canada	4	Russia	26
		US	9
		South Korea	6

ICT Development Index /IDI/ 2013

| ECONOMY	RANK 2012	IDI 2012
Albania	80	4.11
Ecuador	81	4.08
Fiji	82	3.99
Mexico	83	3.95
South Africa	84	3.95
MONGOLIA	85	3.92
Egypt	86	3.85
Suriname	87	3.84
Vietnam	88	3.80
Morocco	89	3.79
Iran	90	3.79
Tunisia	91	3.70
Peru	92	3.68
Jamaica	93	3.68
Dom. Rep.	94	3.58
Thailand	95	3.54

IDI - Asia and the Pacific 2013

ECONOMY	REGIONAL RANK 2012	GLOBAL RANK 2012	IDI 2012	GLOBAL RANK 2011	IDI 2011	GLOBAL RANK CHANGE 2011-2012
Korea	1	1	8.57	1	8.51	0
Hong Kong, China	2	10	7.92	10	7.66	0
Australia	3	11	7.90	15	7.54	4
Japan	4	12	7.82	8	7.77	-4
Macao, China	5	14	7.65	13	7.57	-1
Singapore	6	15	7.65	14	7.55	-1
New Zealand	7	16	7.64	18	7.31	2
Brunei Darussalam	8	58	5.06	56	4.93	-2
Malaysia	9	59	5.04	57	4.81	-2
Maldives	10	73	4.53	71	4.31	-2
China	11	78	4.18	79	3.86	1
Fiji	12	82	3.99	81	3.79	-1
MONGOLIA	13	85	3.92	90	3.59	5
Vietnam	14	88	3.80	86	3.65	-2
Iran	15	90	3.79	88	3.61	-2
Thailand	16	95	3.54	94	3.42	-1
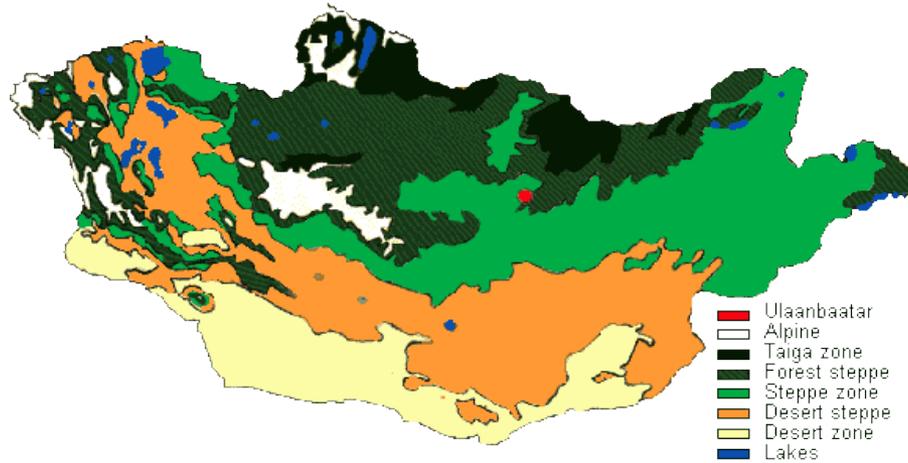
Different regions of the country differ considerably from each by structure of relief and elevation. Such geographic traits of Mongolia determine the severe nature, sharp continental climate and frequently unfavorable weather conditions.

Legend:
- Ulaanbaatar
- Alpine
- Taiga zone
- Forest steppe
- Steppe zone
- Desert steppe
- Desert zone
- Lakes

Area: **1,564,115.75** km^2 **(19th), 603.909** sq.mi
Population: 2015 census of **3.0 million, Density 1.5** km^2

- The country has extensive natural resources, minerals, fossils fuels, forests and vast area of grassland

- The major portion of these resources is untapped.

- Distributed population

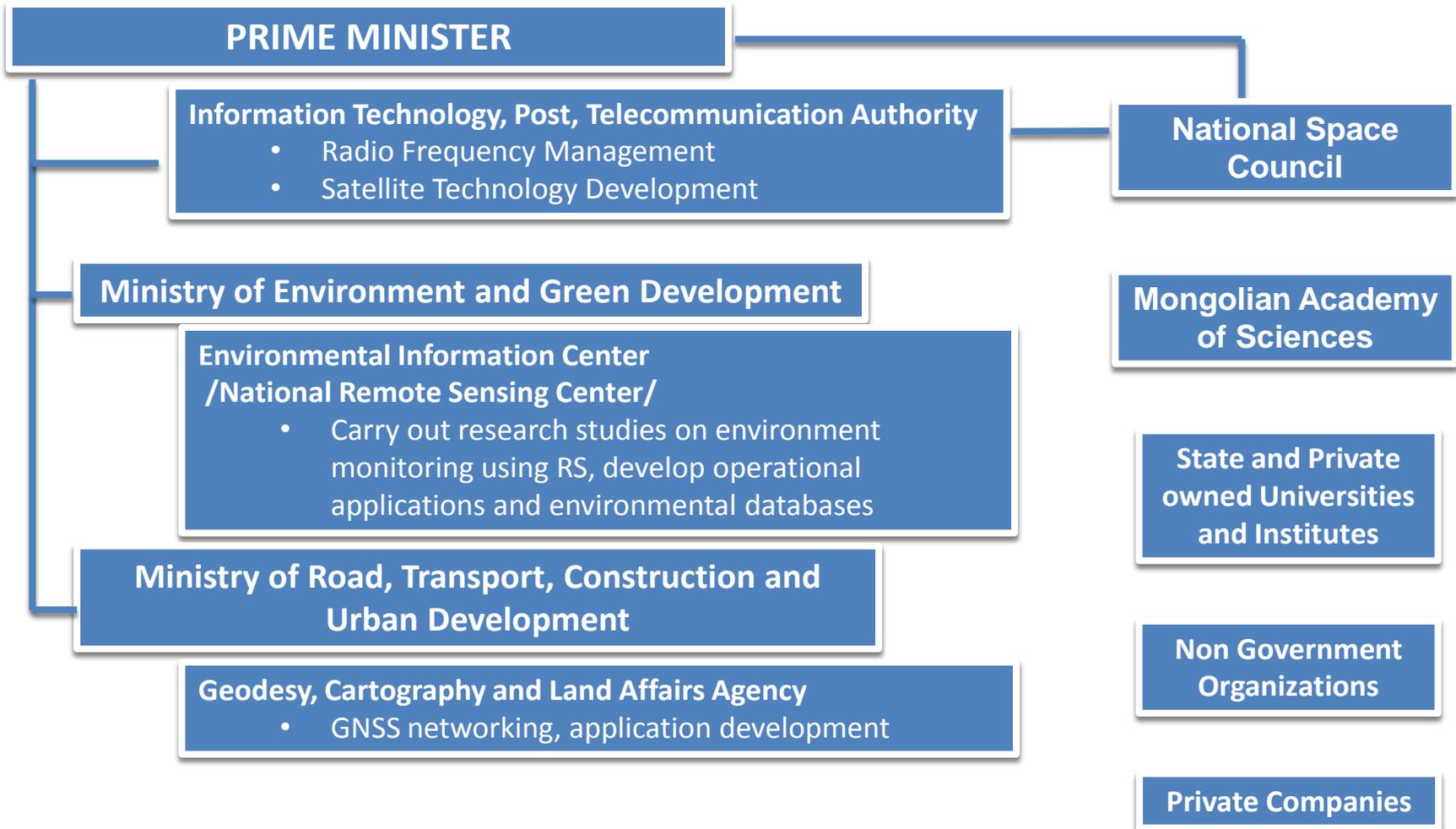- Still Nomadic tradition and way of naturally selected grazing of Horses, Camels, Cows, Sheep, Goats

- 1965: Modern space technology research is started under **INTERCOSMOS** program

- 1970: First Broadcasting satellite data receiving earth station "**ORBIT**"

- 1970: World meteorological satellite data receiving stations established

- 1981: J. Gurragchaa, the first cosmonaut of Mongolia and the second Asian in space. Mongolia has become the tenth country to send an astronaut into space.
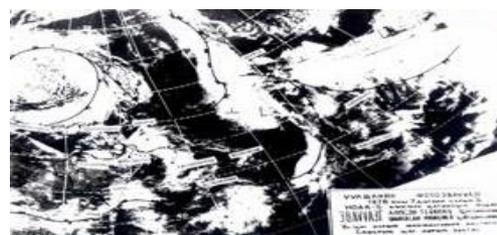
SPACE TECHNOLOGY-RELATED ORGANIZATIONS

PRIME MINISTER

Information Technology, Post, Telecommunication Authority
- Radio Frequency Management
- Satellite Technology Development

National Space Council

Ministry of Environment and Green Development

Mongolian Academy of Sciences

**Environmental Information Center
/National Remote Sensing Center/**
- Carry out research studies on environment monitoring using RS, develop operational applications and environmental databases

State and Private owned Universities and Institutes

Ministry of Road, Transport, Construction and Urban Development

Non Government Organizations

Geodesy, Cartography and Land Affairs Agency
- GNSS networking, application development

Private Companies

POLICY PAPERS

- **"The Millennium Development Goals (MDGs)-based Comprehensive National Development Strategy"** approved by Parliament of Mongolia in 2008.

    *''5.3.4 Information and communication technology development policy***"**
        Phase two (2016-2021):
  - *Starting from 2016 create a small-size, moderately priced optical or radar distance surveillance satellite system and make use of satellite imagery in geodesy, cartography, weather forecasting, environmental monitoring, agriculture, security and defense, as well as in times of natural disasters and emergencies.*

  - *Launch extra small, multifunctional and fully digital communication satellites of new generation into the geostationary orbital slot starting from 2016*

 "Mongolian National satellite project" approved by Mongolian Government. The project was included following activities:

    1. *Improving legal environment to promote space technology development;*
    2. *Developing long term strategy for space industry development,*
    3. *Developing national communication satellite system,*
    4. *Developing national earth observation satellite system,*
    5. *Promote international cooperation for the space technology development,*
    6. *Human resource development.*

Technical and Economical Feasibility Study and Preliminary Design for National Communication and Remote Sensing Satellite Launching Project.

The primary goal of the Feasibility Studies is "*to realize satellite launch by introducing the most suitable satellites to Mongolia through examination of technical and economical aspects, as well as user needs in Mongolia*". Therefore, to realize satellite launch, it is essential to explore financial aspects.
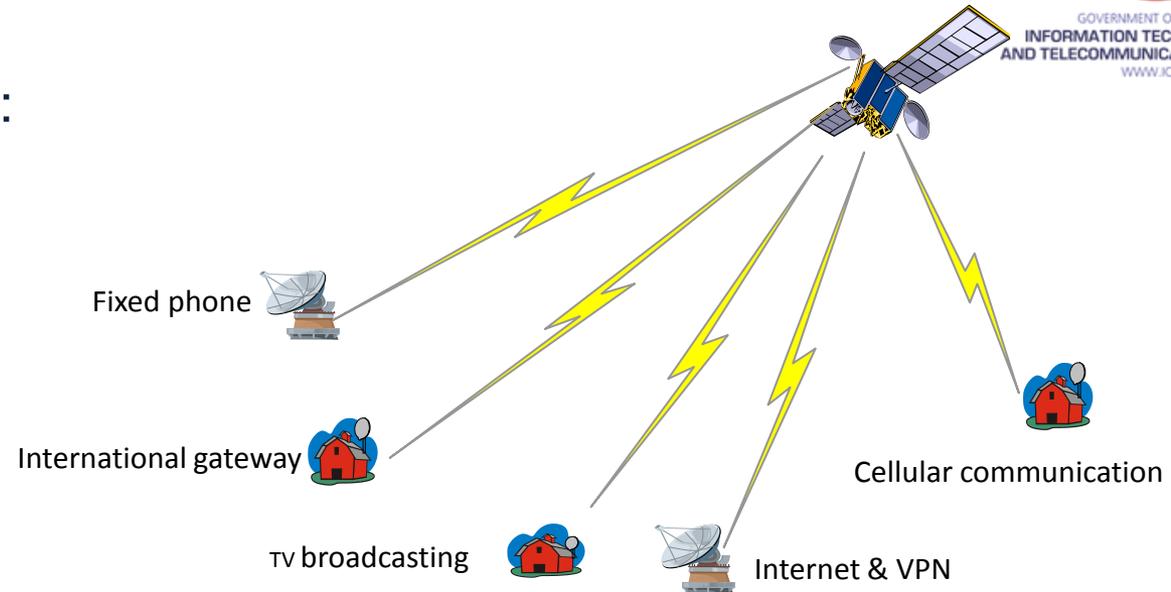
COMMUNICATION SATELLITE MARKET

- Satellites being used:

  - Intelsat 906 (C)
  - Intelsat 20 – (Ku)
  - Apstar 5 – (Ku)

Fixed phone

International gateway

TV broadcasting

Internet & VPN

Cellular communication

Bandwidth of current communications satellites in use in Mongolia is 335.7 MHz.
11 licensed companies are working as Satellite network provider
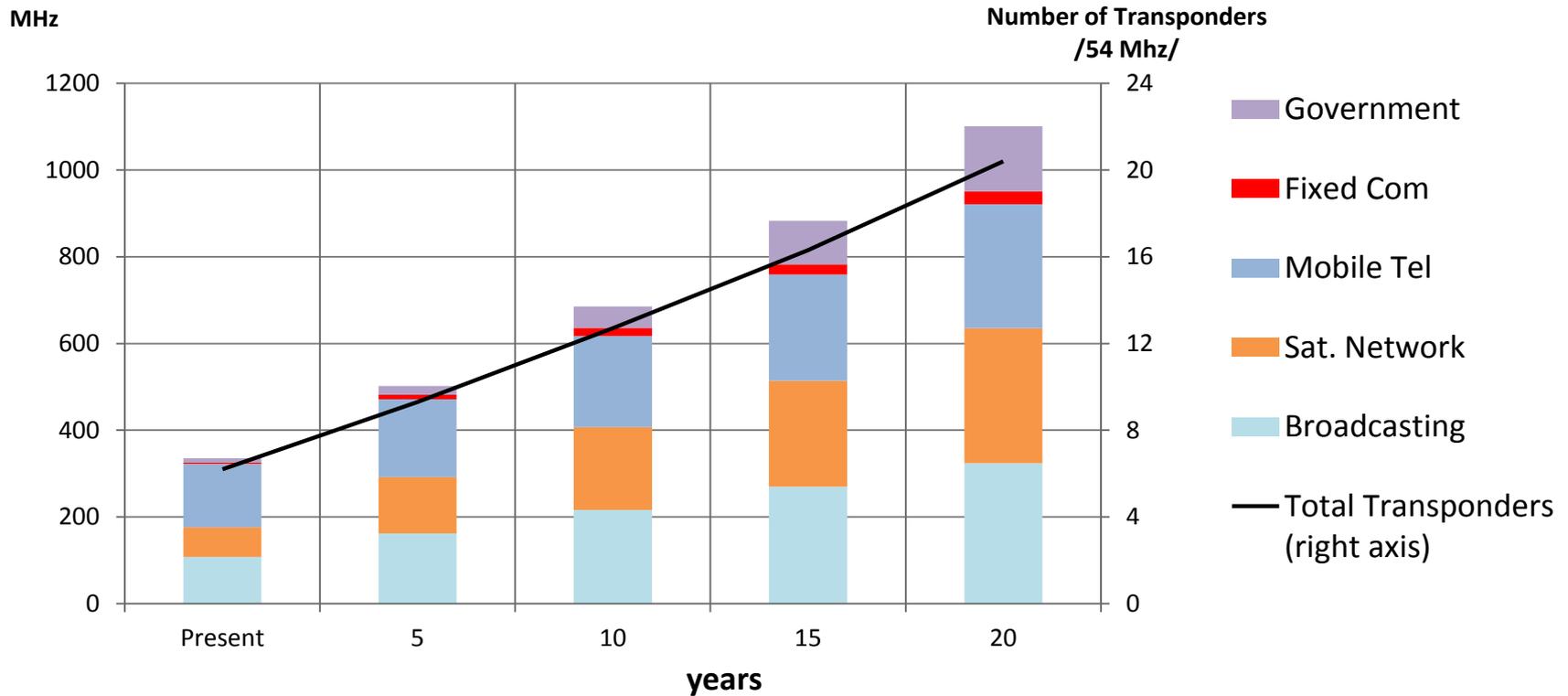
Band	Usage
C band	166,5 MHz
Kю band	223 MHz
1.1 GHz is expected to increase over the next 15 years	

Regarding to ITU procedure

- Summit API fillings by SANSAR1satellite network, 113.6 E in 2012

- Summit API fillings by SANSAR2 satellite network, 113.6 E in 2013

- Summit API fillings by SANSAR3 satellite network , 113.6 E in 2013

- Summit CR/C fillings by SANSAR2 satellite network , 113.6 E in 2014

USAGE and DEMANDS
of space technology
in Mongolia

Communication satellite

- VSAT networks;

- Broadcasting Direct To Home (DTH);

- Disaster relief and emergency communications;

- Back haul for terrestrial mobile networks;

- High capacity internet;

- Distance education;

- Distance medicine;

- Governmental communications etc.,

Usage of Communication satellite

- Currently in Mongolia, two (2) satellites are being used for satellite communications:
  - INTELSAT 906 (@64 E) in the C-band, and
  - APSTAR 5 (@138 E) in the Ku-band and C-band.
- With the exception of one user who uses APSTAR in C-band, all other users employ the Ku-band.
- A number of Mongolian organizations and company are currently using these foreign communications satellites for various purposes.

Current users of Satellite technology

- **Government agencies:**
  - **Mongolian Civil Aviation Agency (MCAA)**
  - **National Emergency Management Authority (NEMA)**
  - **National Remote Sensing Center, National Agency of Meteorology, Hydrology and Environmental Monitoring (NAMHEM)**
  - **National Emergency Management Authority (NEMA)**
- **Fixed communications carriers:**
  - **Mongolian Telecommunication Company (MTC),**
  - **Mongolia NetCom and Naran earth station**
  - **Mongolia Railway Company**
- **Mobile (cellular) communications carriers:**
  - **Mobicom, Skytel, Unitel, G-mobile**
- **Broadcasting company:**
  - **DDish**
- **Satellite network companies:**
  - **Incomnet, Orbitnet**

Major fields of remote sensing applications in Mongolia

- Grassland distribution analysis
- Disaster information
- Land use change
- Sand movement and desertification monitoring
- Geological map and mineral exploration
- Forest distribution, forest biomass
- Soil monitoring

CHALLENGE

- Build up the skills of engineers
  - ITU fillings
  - SANSAR-3
- Start RF Coordination with .. Countries
  - Regarding to the objection

Thank you for your attention

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