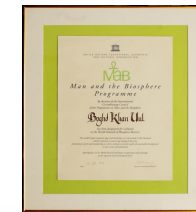




MINISTRY OF NATURAL
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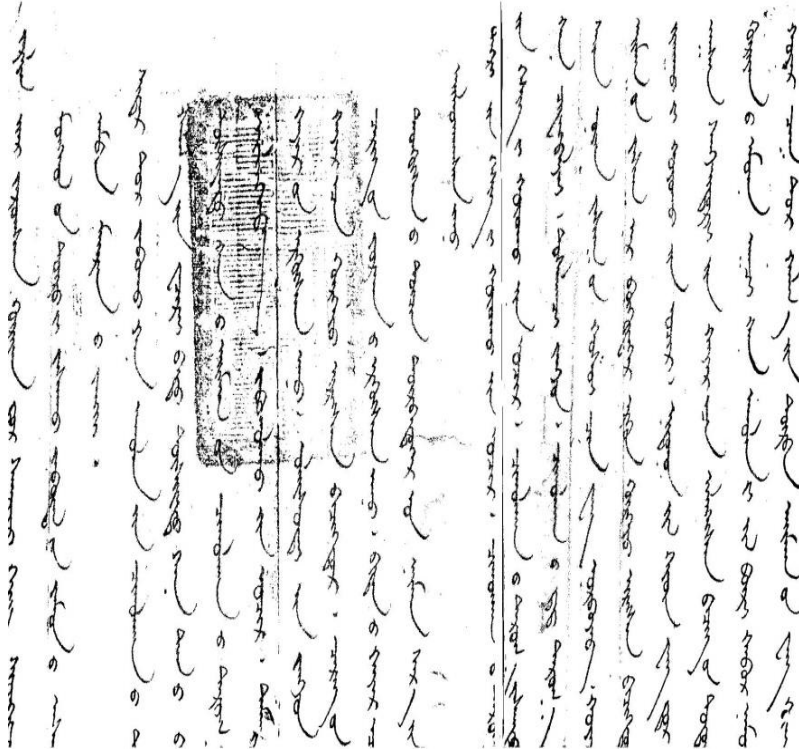


INSIGHT CAMERA PROJECT in BOGD KHAN UUL BIOSPHERE RESERVE

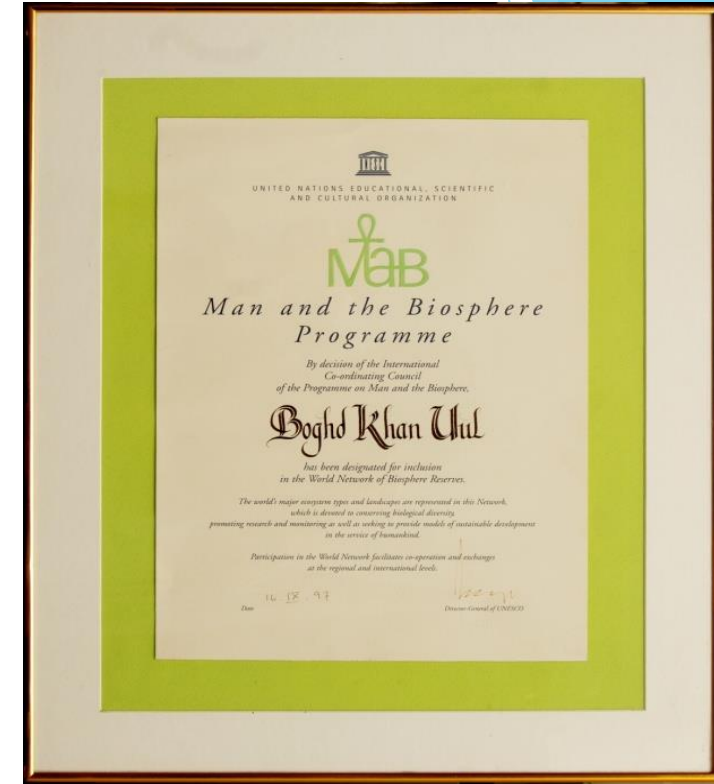
The 2nd Huangshan Dialogue on UNESCO Sites and Sustainable Development
11-15 September, 2016
Huangshan China



Bogd Khan Uul Biosphere Reserve



Declaration of Bogd Khan Mountain to be the first ever Strictly Protected Mountain, 1778



Certificate of the Bogd Khan Uul Biosphere Reserve, 1996

- ▶ Established as the first ever Strictly Protected Mountain
- ▶ Declared several times as a Strictly Protected Mountain in 1913, 1957, 1974, and 1995
- ▶ Has been designated for inclusion in the World Network of Biosphere Reserve of the UNESCO in 1996



Forested area of the Bogd Khan Biosphere Reserve

- 100% of the Core zone has covered Forest.
- 53.1% (22129 h) of the Buffer zone of Biosphere Reserve consists of forested areas.
- From this forested area, 98.9% (18167 h) is natural forest and the rest is mainly bushes.
- 8.4% (241 h) of the forest caught in a wildfire while 44.0% (1257 h) has been diseased by pests



Land Use

Over 1.5 million human population resides around the Bogd Khan Uul Biosphere Reserve

There are currently 34 authorized tourist camps in the Buffer zone of Bogd Khan Uul Biosphere Reserve which includes:

- Hotels – 4
- Tourism camps – 10
- Ger camps– 11
- Spas – 4
- Sport field – 2
- Summer camp – 1
- Scientific Research centers – 3





Protecting Technics and Equipment for the BR



23 Rangers



Russian Vehicles



Wildfire Firetruck



Firefighting equipment for the Rangers



Rangers' control tower



Rangers' houses



Fencing



Reforestation

Human population causes

- ▶ Density of human population causes many problems such as:
 - **Wildfire**
 - garbage
 - Illegal logging
 - Poaching and etc.

Largest wildfires took in 2007;

- ▶ burned 370 hectares (over 40 places)
- ▶ Suppression expenditure was \$3.75 million
- ▶ Attended 850 firefighters included volunteers to suppress

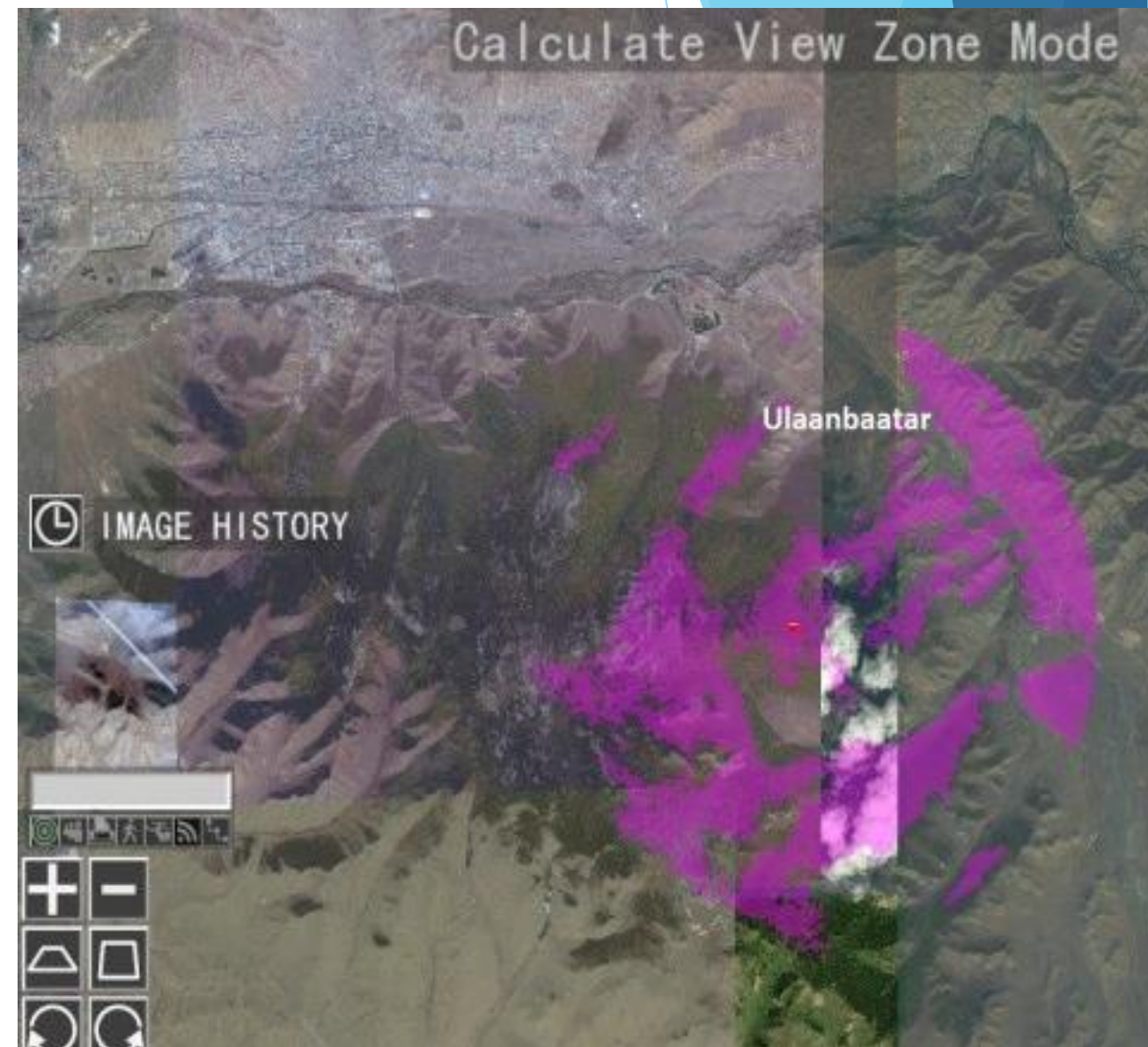


The Solution

- ▶ Density of human population causes many problems such as:
 - Wildfire,
 - Littering,
 - Illegal logging,
 - Poaching, and etc.
- ▶ The solution to prevent these problems is installing cameras at Bogd Khan Uul Biosphere Reserve



View Ranges of Two Insight Cameras



Network of Insight Cameras

[1]

A network of **Insight** cameras is installed in strategic locations throughout the forest

The cameras can scan the forest for wildfire, collecting data and images

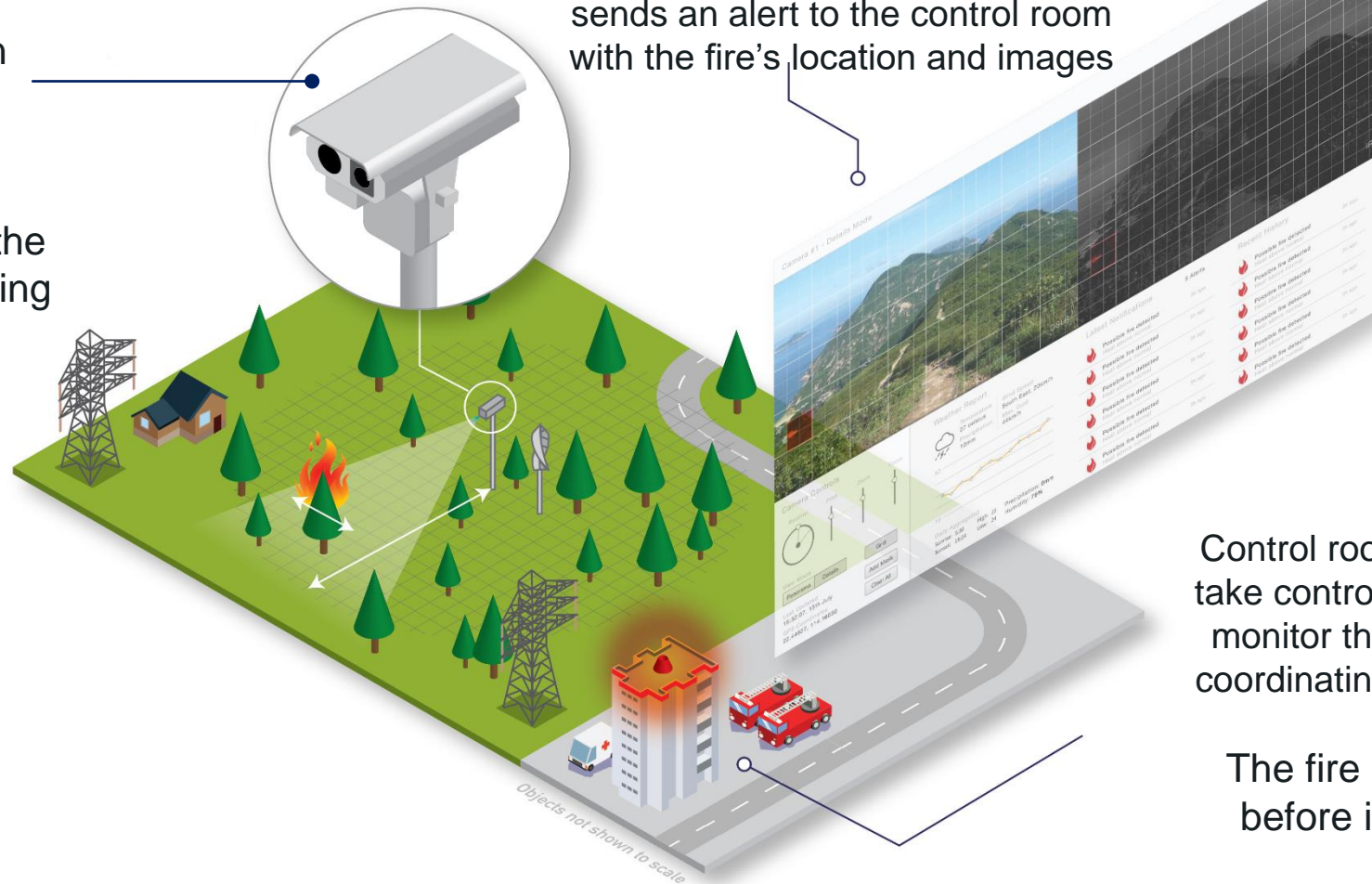
[2]

When a fire breaks out, the camera sends an alert to the control room with the fire's location and images

[3]

Control room operators can take control of the robot and monitor the situation while coordinating with firefighters

The fire is suppressed before it can spread.



CAMERA TOWER

- The height of the tower will be 20-30 meters and only two towers would be enough to cover the whole Bogd Khan Uul Biosphere Reserve.
- The camera towers could also have variety of different uses such as communication towers, TV antennas and etc.



Wildfire detection system features

- ▶ Thermal fire detection scanning
- ▶ Constant coverage 360° smoke detection
- ▶ Automatic warning
- ▶ Remote real-time monitoring
- ▶ Multi-spectrum imaging
- ▶ 3D fire location map
- ▶ Weather station
- ▶ Coverage and blind spot simulation
- ▶ Panoramic viewing
- ▶ Hot object masking
- ▶ Historical data and image Storage
- ▶ Fire report generation
- ▶ Fire alert “push” notification
- ▶ Cloud server
- ▶ Mobile-accessible cloud server



Equipment Cost



Insight Camera

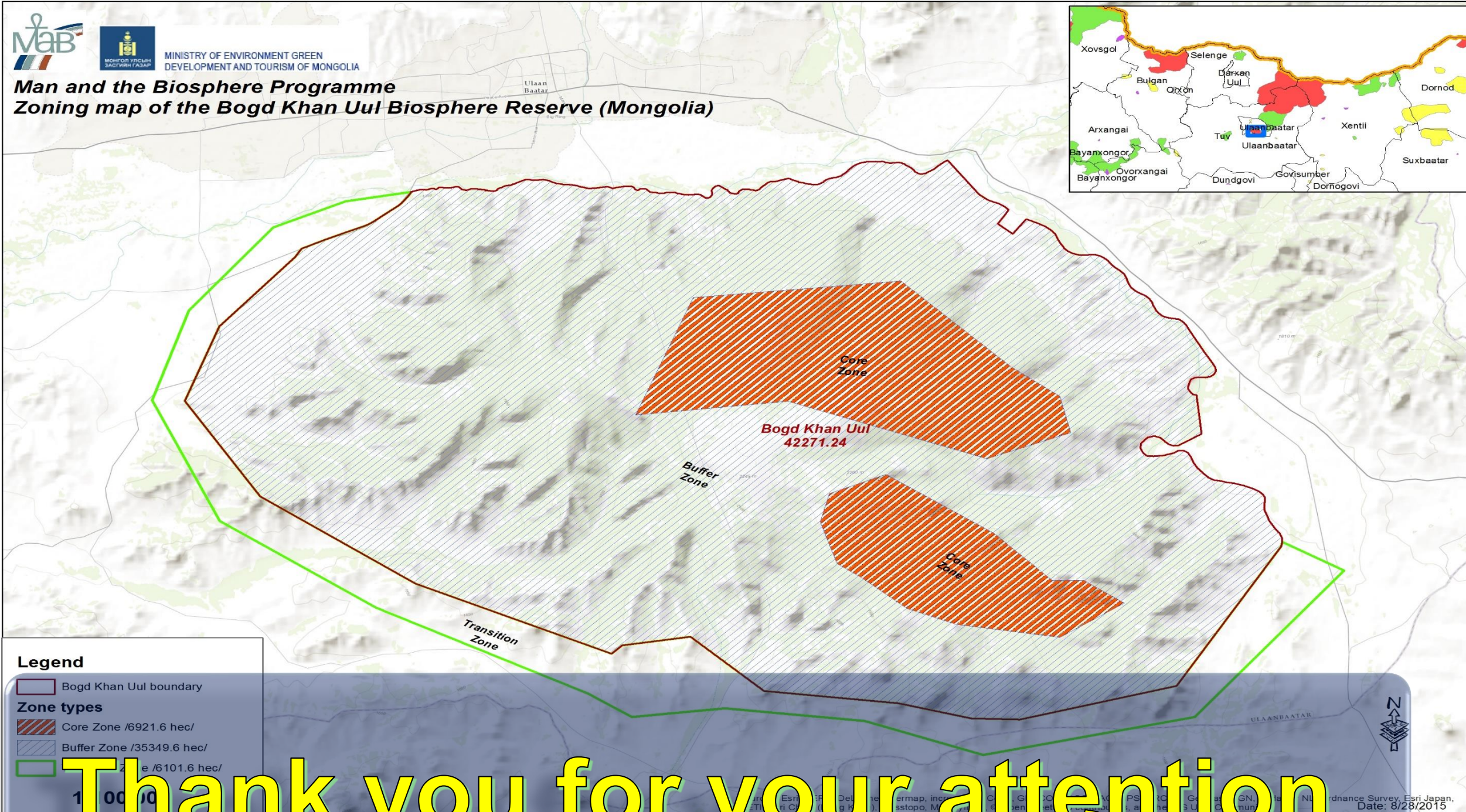
\$50 000 - includes price of the camera plus installation + networks + services



Installation Tower

\$15 000 - included all costs and raw materials

Man and the Biosphere Programme
Zoning map of the Bogd Khan Uul Biosphere Reserve (Mongolia)



Thank you for your attention