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Efforts of Introducing TEIA in NE Asia: Pilot Project b/w Mongolia and ROK

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Transboundary EIA Workshop in NE Asia since 2004

● Initially launched as a follow-up activity to the TumenNET

- TumenNET: a regional cooperation mechanism in NE Asia
- changed to Greater Tumen Initiative (GTI) in 2005

● Objectives

- to promote participants' understanding of EIA system and on-going developments in participating countries
- to exchange information and knowledge concerning EIA in a transboundary context
- ultimately **to develop a regional Transboundary EIA mechanism** with guidelines and regulations of TEIA procedure as well as assessment method for development projects in the region

● Organizers

- Ministry of Environment, ROK
- Korea Environment Institute (KEI), ROK

Transboundary EIA Workshop

Year	Place	Participants	Co-organizer & invited speakers
2004	Seoul Korea	Russia(6), China(6), Mongolia(6)	UNEP (invited)
2005	Beijing China	Russia(4), China(9), Mongolia(6), DPRK(6)	SEPA, ACEE
2006	Vladivostok Russia	Russia(15), China(5), Mongolia(6), ROK(5)	MNR RF FELD FSS
2007	Ulaanbaatar Mongolia	Russia(3), China(4), Mongolia(27)	MNE, MAIA
2008	Gwacheon Korea	China(5), Mongolia(5), Korea(40)	Espoo Convention Secretariat, GTI, UNESCAP (invited)
2009	Jeju Korea	Russia(6), China(4), Mongolia(3)	Espoo Convention Secretariat, GTI (Invited)
2010	Incheon Korea	Russia(3), Mongolia(6), Japan(2), Korea(10)	Espoo, GTI, Tokyo U., Hokkaido U. (Invited)
2011	Vladivostok Russia	Russia(20), Mongolia(3), ROK(5)	FEFU
2012	Seoul Korea	Invited individual experts from Poland(1), Czech(1), Croatia(1), Hungary(1), Kazakhstan(1), Japan(1), MRC Secretariat(1), Vietnam(1), Mongolia(1), Indonesia(1), Espoo Convention Secretariat(1), ROK(5)	Espoo Convention Secretariat

* KEI former president, Byeoung Wook Lee gave a talk regarding TEIA in the 6th MOP to the Espoo Convention (June 2014)

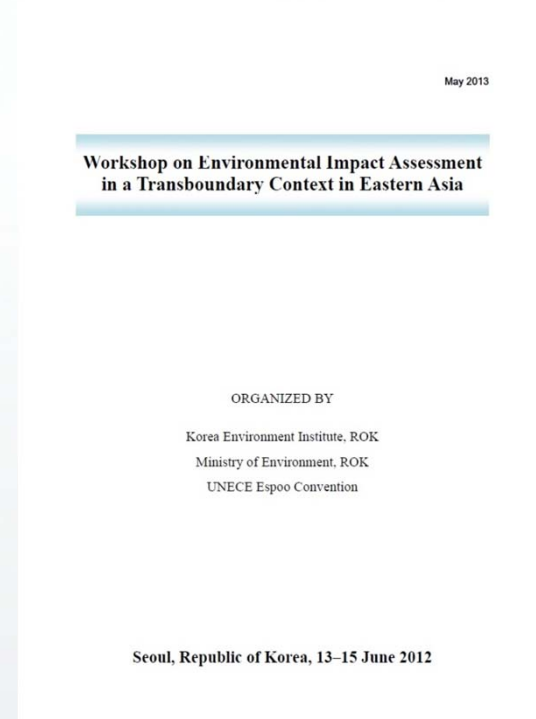
Transboundary EIA Workshop

● 2012 workshop by KEI, MoE and Espoo

- The workshop provided expert opinions on introducing TEIA and prompted useful discussions by participating **experts from 10 countries in Europe and Asia and international organizations recommended by the Espoo Convention.**

● Executive Summary of 2012 workshop

- **Key suggestions to introduce TEIA into NE Asia region**
 - developing regulations which suit NE Asia's reality
 - establishing secretariat that can push forward TEIA
 - expanding the bilateral and multilateral agreement
 - enhancing the interest of governments through Pilot Projects



Pilot TEIA b/w Mongolia and ROK

- Project Title: *Pilot Transboundary EIA*
- Target project: *Tavan Tolgoi - Gashuun Sukhait railway*
- Duration: *Apr-Sep, 2014*
- co-implemented by National University of Mongolia (NUM) and Fresh water and ecosystem research institute (FWERI) with cooperation of Korea Environment Institute (KEI)
- with strong supports from both MoE, ROK and MoEGD, Mongolia

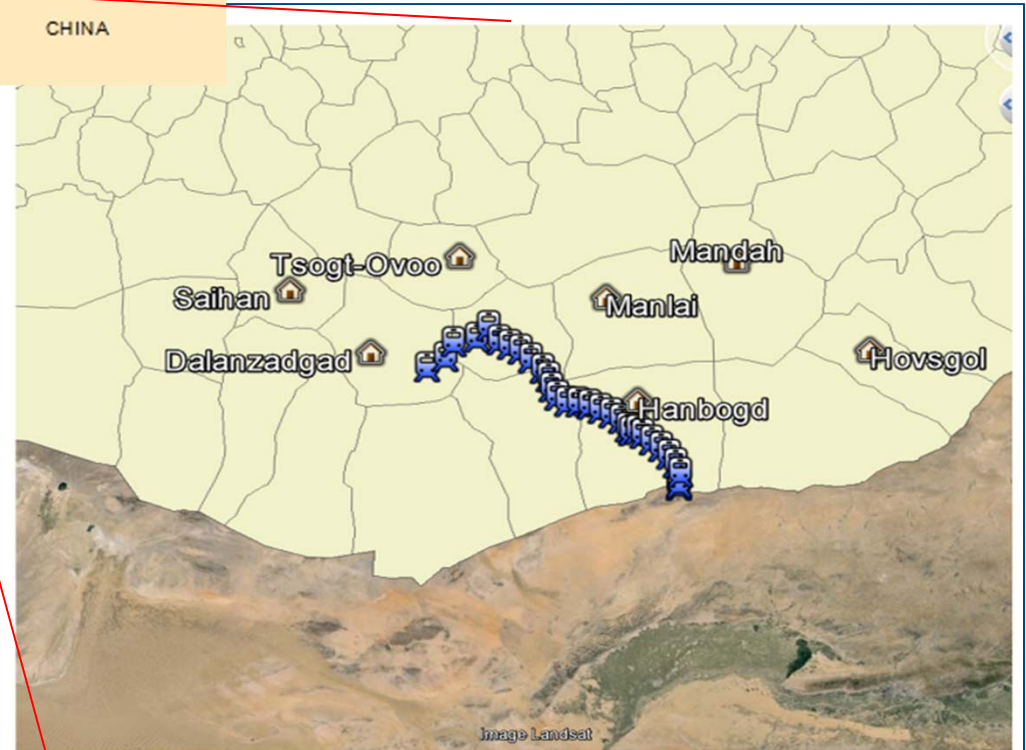
Target Area

Pilot TEIA



267 km railway track is designed from Tavan Tolgoi to Gashuun Sukhait

The railway construction process has started in 2013 and its ~70% of grading has been done successfully



Scoping the Issues

- ◆ Ambient air quality degradation during the construction phase
- ◆ Dust storms caused by combination of construction works and wind
- ◆ Noise level increase
- ◆ Change in animal movement
- ◆ Degradation of the Special Protected areas
- ◆ Dust deposition on the vegetation affect the change in ecosystem

Scoping the Assessment components:

- ◆ Geography
- ◆ Air Quality
- ◆ Soil
- ◆ Surface and groundwater
- ◆ Land use
- ◆ Flora
- ◆ Fauna
- ◆ Socio-economy

- Conducted EIA in 2008 (by Enco LLC)
- 34 potential impacts assessed using Matrix

Development components of the project	Environmental aspects	Significance	Duration
<i>Initiation</i>	Soil	Moderate negative	
<i>Implementation</i>	Geological formation	High negative	During the project
	Soil	High negative	
	Flora	High negative	
	Fauna	High negative	
	Water	High negative	
	human	High negative	
<i>Completion</i>	Air	Moderate	End of the project implementation
	Soil	Moderate	
	Fauna	Moderate	

Pilot TEIA



“Gashuun Sukhait
“border check point

Photo by Young-Joon Lee, June 2014



1. Introduction of the target project
2. Scoping the issues
3. Scoping the assessment components
4. Describing the alternatives
5. Assessing the potential impacts
6. Determining impact significance
7. Identifying best practical environmental option
8. Gaps and uncertainties
9. Environmental monitoring

Transboundary Impacts

Pilot TEIA

Environmental aspects	Negative impacts		Positive impacts	Scope of the impacts
	Short-term impacts during construction	Long term impacts during operation		
I. Ecology				
1. Hydrobiont	moderate			domestic
2. Soil insects	moderate			transboundary
3. Wildlife habitat	moderate	moderate		domestic
II. Physical change of environment and pollution				
4. Water quality and resource (drinking water)	moderate	moderate		domestic
5. toxic substances could produce waterborne diseases which may affect human and animals	moderate	moderate		domestic
6. Dust	moderate	moderate		transboundary
7. Soil pollution	high			transboundary
8. Noise	high	moderate		transboundary
9. Soil moisture				transboundary
10. Surface fluxes				transboundary
11. Wind speed				transboundary
III. Natural resource use				
12. Land use	moderate			domestic
13. Pastureland	moderate	moderate	moderate	domestic
14. Agriculture			high	domestic
15. Mineral resources	high			domestic

Transboundary Impacts

Pilot TEIA

Environmental aspects	Negative impacts		Positive impacts	Scope of the impacts
	Short-term impacts during the construction phase	Long term impacts during the operation phase		
IV. Natural and technological hazards				
16. Accidents caused by inadequate storage and utilization	moderate			domestic
17. Increase in frequency and probability of occurrence of natural disaster				domestic
18. natural disaster, flood, earthquake		moderate		domestic
V. Social impacts				
19. Power supply			moderate	domestic
20. Water supply		moderate		domestic
21. Hospital, commerce and services			moderate	domestic
22. Impact on infrastructure development	moderate		high	transboundary
23. Resettlement				domestic
24. Change in individual income			moderate	domestic
25. population change			moderate	domestic

Transboundary Impacts

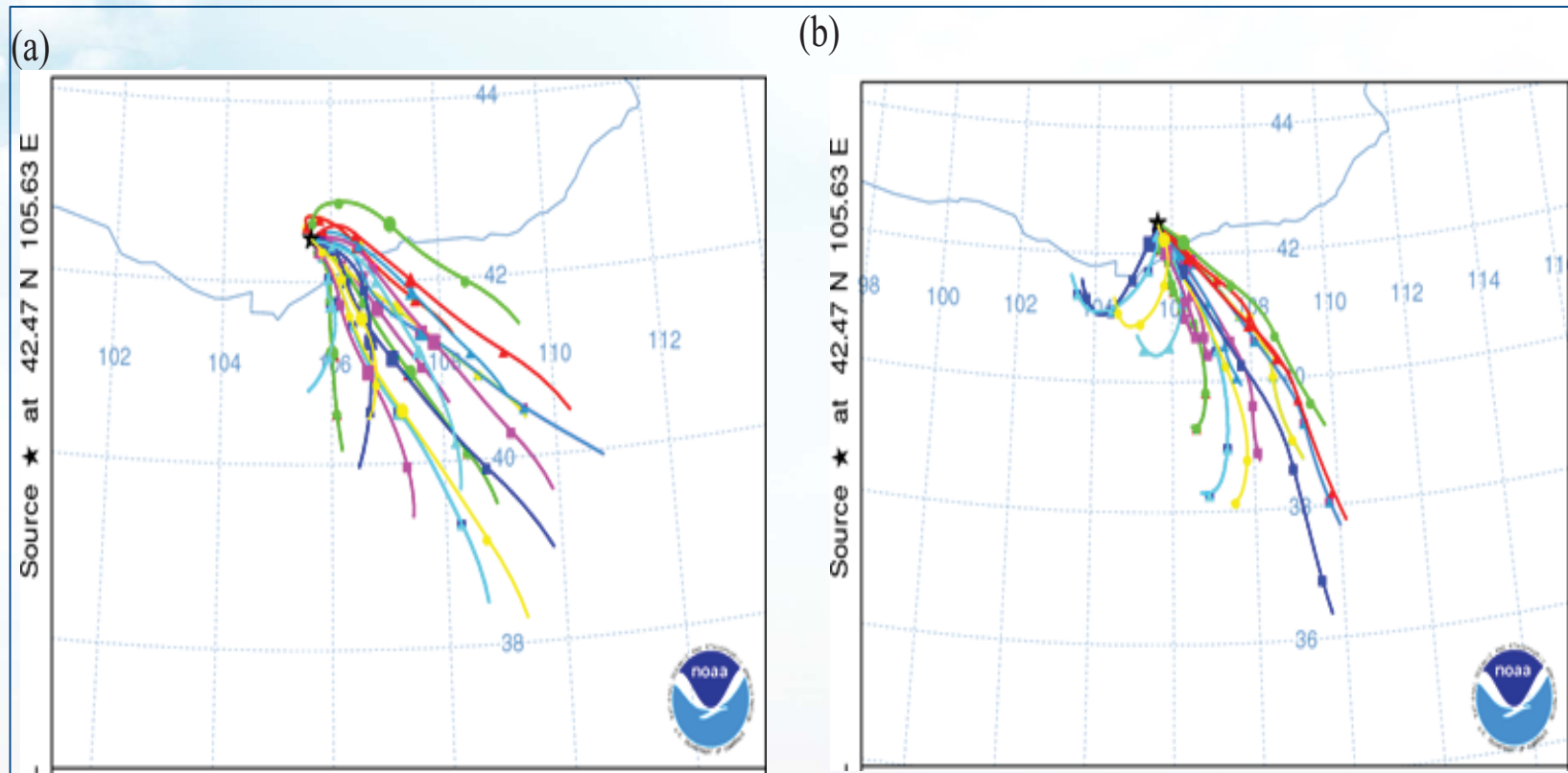
Pilot TEIA

Environmental aspects	Negative impacts		Positive impacts	Scope of the impacts
	Short-term impacts during construction	Long term impacts during operation		
VI. Impacts on economy and the environment				
26. changing individual income and tax			moderate	domestic
27. increasing local income			high	transboundary
28. increasing seasonal demand			moderate	
29. increasing employment			moderate	domestic
30. Supporting to reduce poverty			moderate	domestic
31. Increasing land use			high	transboundary
VII. Natural beauty				
32. Degrading natural beauty	moderate			Transboundary
33. Landscape change	moderate			domestic
34. To affect the special protected areas				transboundary
35. To affect tourism			high	transboundary
VIII. Historical, archaeological and cultural heritages				
36. Impacts on historical heritages				domestic
37. Affecting on archaeological and paleontological finds				domestic

In this table: "Domestic" refers to the impacts cover the area of the proposed railway track

"Transboundary" refers to the area of proposed railway track and 190km from the border of Mongolia to China 14

WRF - Weather Research and Forecasting



The dust particles are capable to be transported up to ~190 km beyond the boundary of Mongolia during daytime.

Direct/indirect Impacts

Pilot TEIA

Impact type	Impact significance	Direct/indirect
Soil insects	moderate	Direct
Dust	moderate	Direct
Soil pollution	high	Indirect
Noise	high	Direct
Soil moisture	high	Indirect
Microclimate	moderate	Indirect
Surface fluxes		Direct
Air quality	high	Direct
Impact on infrastructure development	moderate	Indirect
Increasing local income	high	Indirect
Increasing land use	high	Direct
Degrading natural beauty	moderate	Direct
Resettlement	high	Indirect
To affect the special protected areas	moderate	indirect
To affect tourism	moderate	Indirect

Identifying Best Practical Environmental Option

Impacts	Paved road	The proposed railway
Degradation of ambient air quality	Always high when transportation activities	Only during the construction
Increasing dust	Always high when transportation activities	Only during the construction
Scope of the land use change	Increasing	limited
Transportation efficiency	low	high
Economic effectiveness	low	high

- No observational measurements for validation of the modeling results around the border
- Consequences of the impacts of trucks movement excluded
- Unclear organization of public participation at transboundary level
- No particular study on wild animal population and their habits; thus, impossible to assess potential impacts on that issue

- Example of Air quality

Impacts	Mitigation measures	Monitoring program,
Dust	To water and moisturize dust source during the earthwork activities of the construction phase	Carrying out air quality monitoring program in the projected area by measuring observation of dust and amounts of CO, SO _x CmHn (twice a year)
Toxic materials (including CO ₂ , CO, SO ₄ , NO ₂ , C ₁₂ H _(10-n) CLn, C ₁₂ H _(8-n) CLnO ₂ , C ₁₂ H _(8-n) CLnO), particulates and odors	To arrange activities of the construction and transportation should be exposing sound levels less than 70 dB	To undertake noise level monitoring by measuring for an hour twice a year at 8 points in the projected area
Increasing noise	To prevent sound level using insulation and noise barrier for the noise source	Ensuring compliance with standards of MNS 3295: 1991 for air quality and MNS 5002-2000 for noise

Lesson learnt from the Pilot TEIA

- **Should be identified before the TEIA:**
 - Consensus of criteria that can be critical value for TEIA
 - size, location, effects
 - Significant terminology
 - Regulation or rules at political level
 - Public participation: Bi- or multi-lateral participation
 - Assessment methods based on the scientific approaches
 - Bi- or multi-lateral discussion for having e a similar knowledge of TEIA

- **By conducting the practical application of TEIA procedures,**
 - Transboundary issues in the Gobi area related to the target project
 - Assessing the impacts of the target project in a transboundary context
 - Defining the factors which could be affected by transboundary impacts
 - Checking out what kinds of additional process, prediction analysis, mitigation measures are necessary in a transboundary context

How to introduce TEIA in NE Asia?

● Current situation

- Different political, economic and cultural backgrounds
- Need a considerable amount of time for actual implementation of TEIA
- But implementing TEIA in the region is still urgently needed because of **increased attention related to governmental policies and plans**

● Double-track approaches

A1

Establish a regional TEIA mechanism that all countries legally join

A2

Prepare a process to carry out TEIA for upcoming projects based on bi- or multi-lateral agreements

- ***Pilot projects can enhance governments' awareness of the positive effects of introducing TEIA in the region.***



***Think about
Life and
the Environment***

