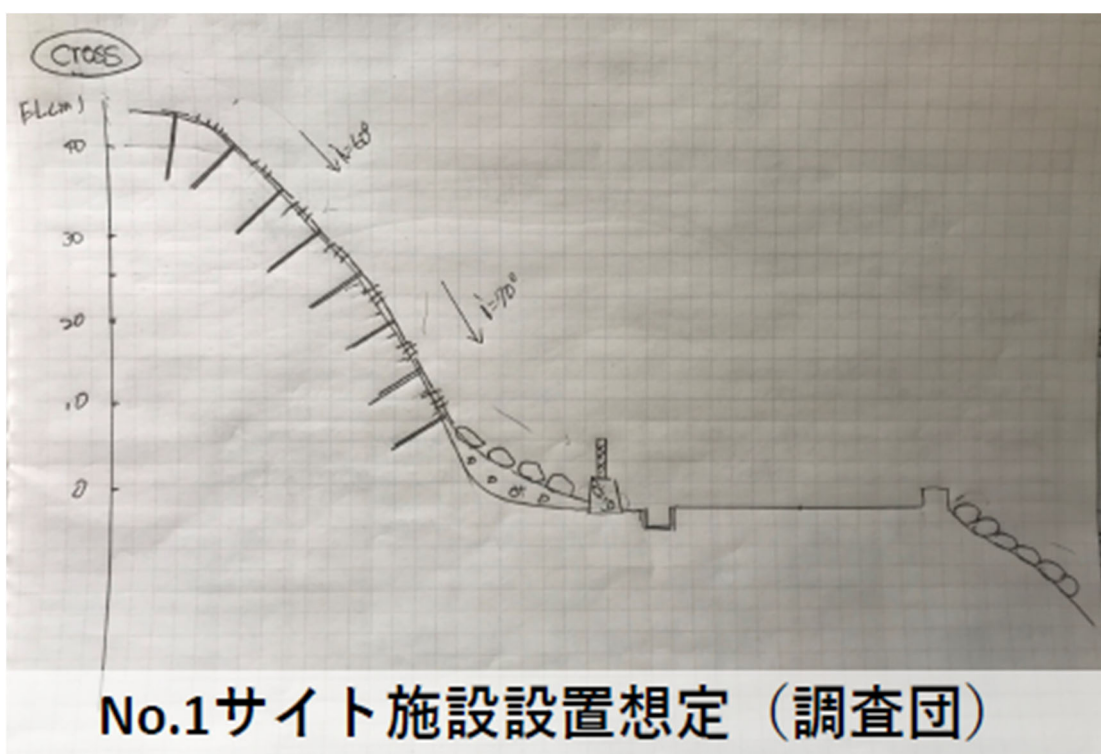
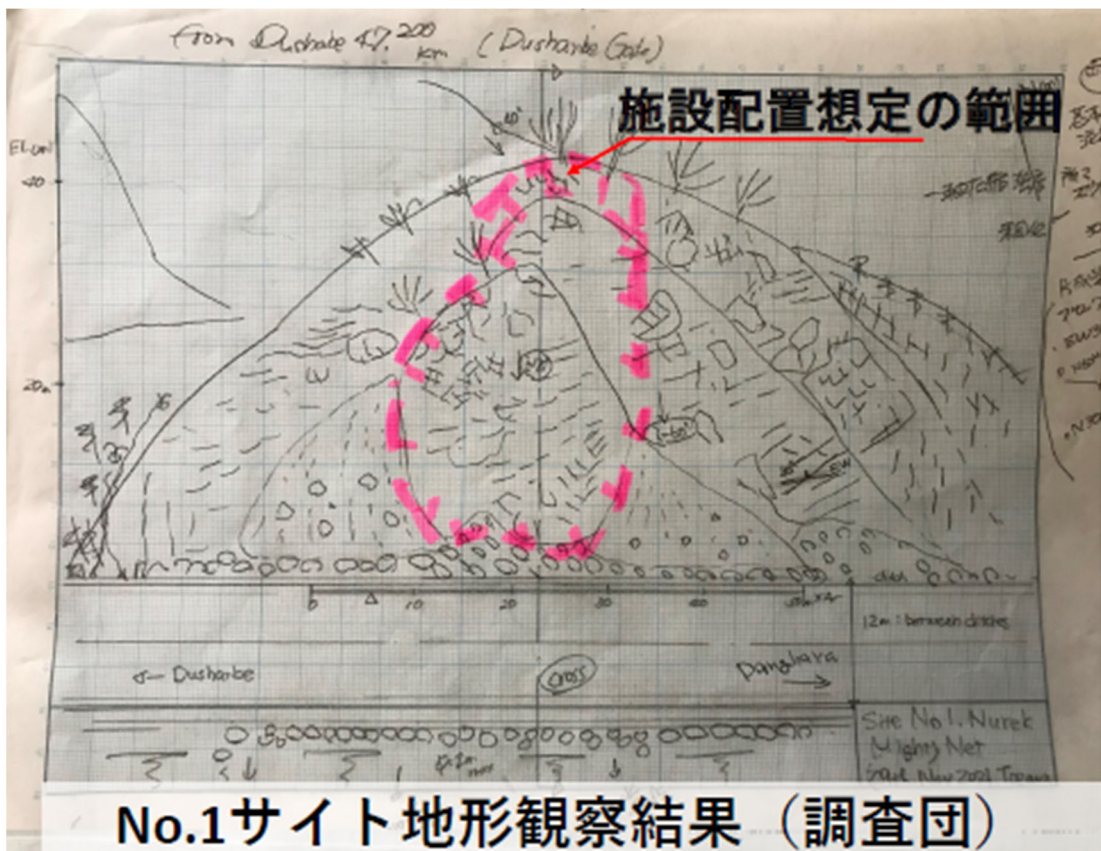


付属資料 2-2 第 1 回現地調査の結果

【No.1 サイト：ヌーレック】



Survey of Road Traffic Condition
 Coordination (Satelight) Date Recorded by
 Legend Heavy
 Medium
 Light

Site No 1	Name	Section								
km ← slope		km → M- Dagshara								
Traffic										
From Dagshara To Dyshenke					From Dyshenke To Dagshara					
Time	Heavy Dump Truck	Tractor	Medium	Light	Total	Heavy Dump Truck	Tractor	Medium	Light	Total
10:00 ~ 11:00	7	12	396	22	437	7	15	101	67	190
persons	12	24	1393	52	1481	9	30	342	67	438

No.1サイト 交通量調査 (調査団)

写真 斜面の状況



【No. 2 サイト：ダンガラ】

写真 サイト状況

	
<p>サイトの状況（2面が擁壁の用水路）</p>	<p>サイトでは工事が行われていた</p>
	
<p>流下能力向上のため浚渫・護岸補修</p>	<p>サイトで技術的討論</p>

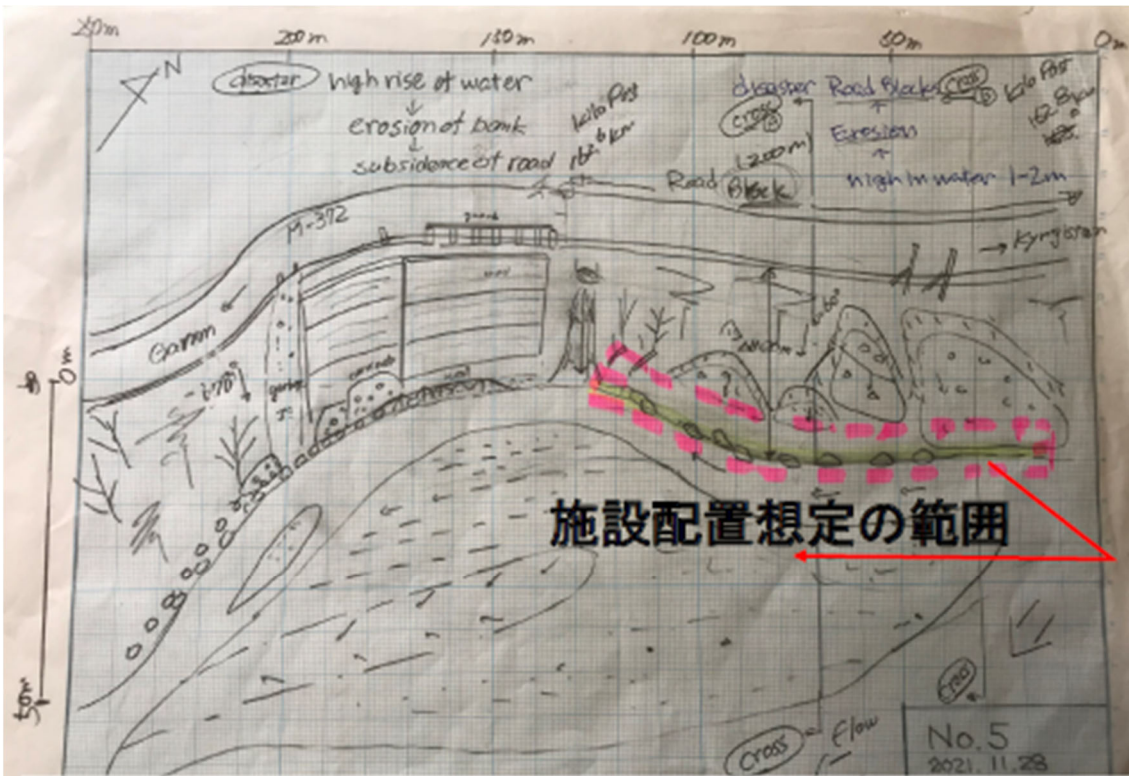
【No. 4 サイト : バフダット】



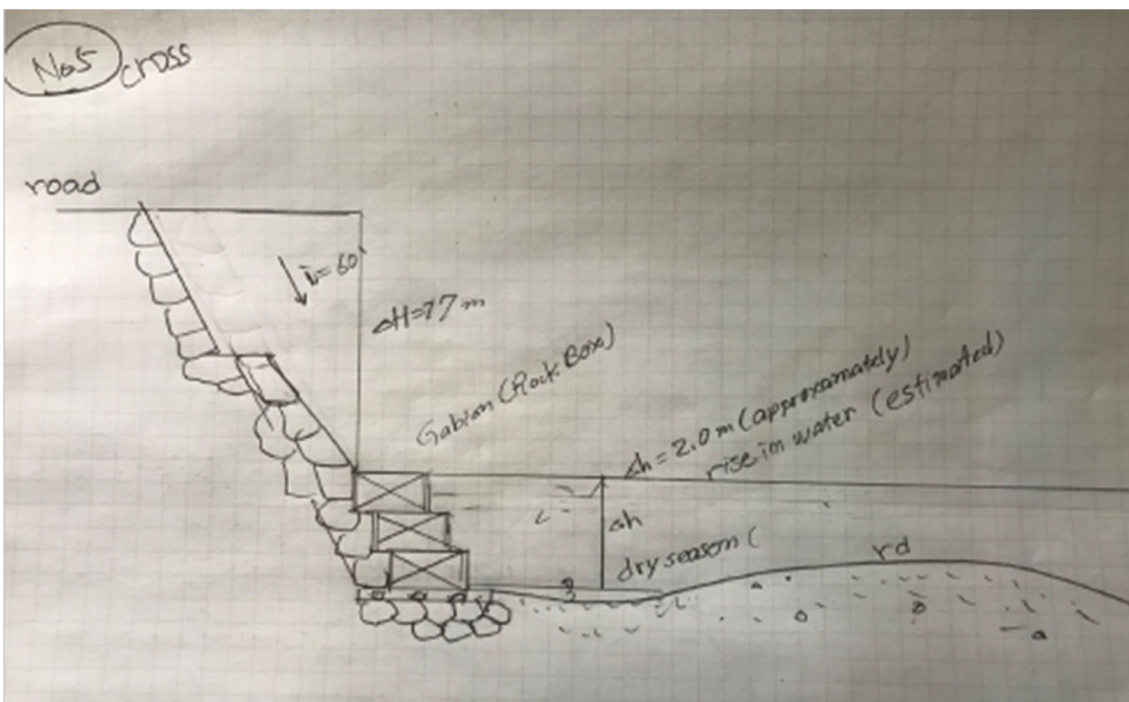
写真 サイトの状況

	
<p>サイトの全景状況</p>	<p>サイト全体の理解を話し合う</p>
	
<p>河床の状況（強い流れで礫が一定方向に向く）</p>	<p>水位の上昇で護岸侵食、補強工を実施中</p>
	
<p>護岸侵食により道路の沈下が起きている。</p>	<p>参考となる金網の巻き方・石の詰め方</p>

【No.5 サイト：ラシュト】




No.5サイト地形観察結果 (調査団)



No.5サイト施設設置想定 (調査団)

写真 サイトの状況

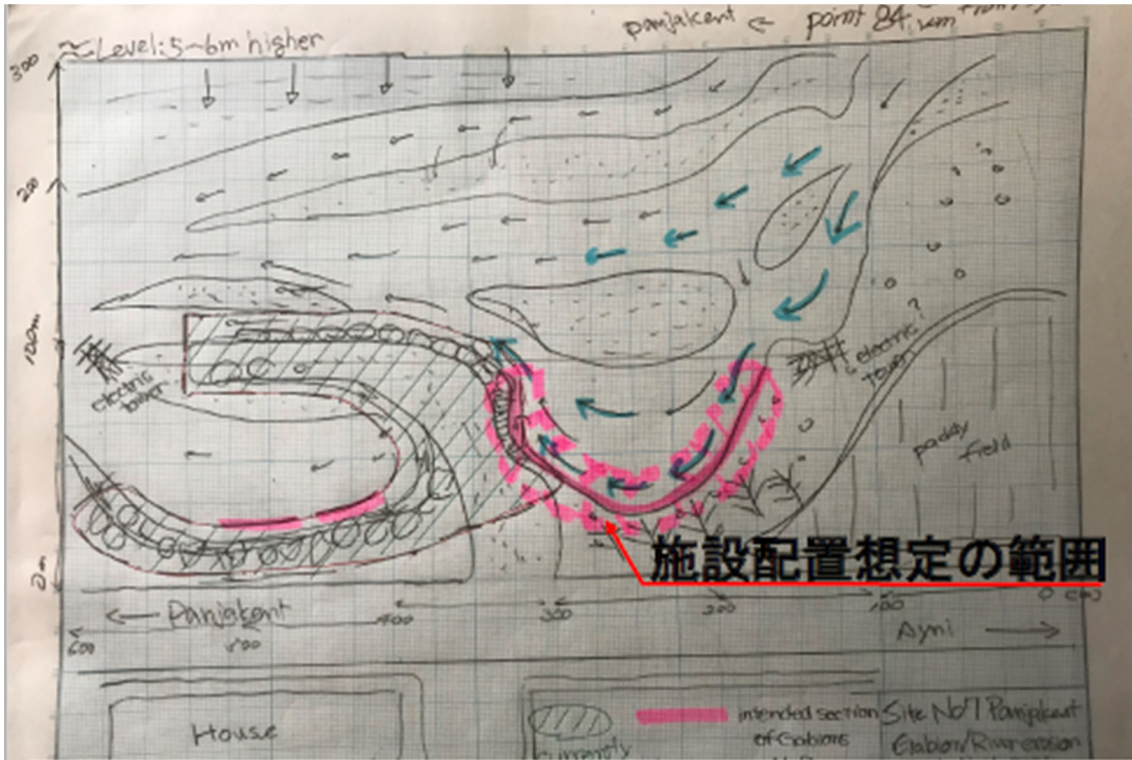
	
<p>サイト全景（護岸の浸食激しい）</p>	<p>上流側の斜面（浸食による崩壊が発生）</p>
	
<p>浸食, 崩壊, 道路盛土の流動, 路面沈下、</p>	<p>河床にもつよう流れの跡が残る</p>

【No. 6 サイト：アイニ】

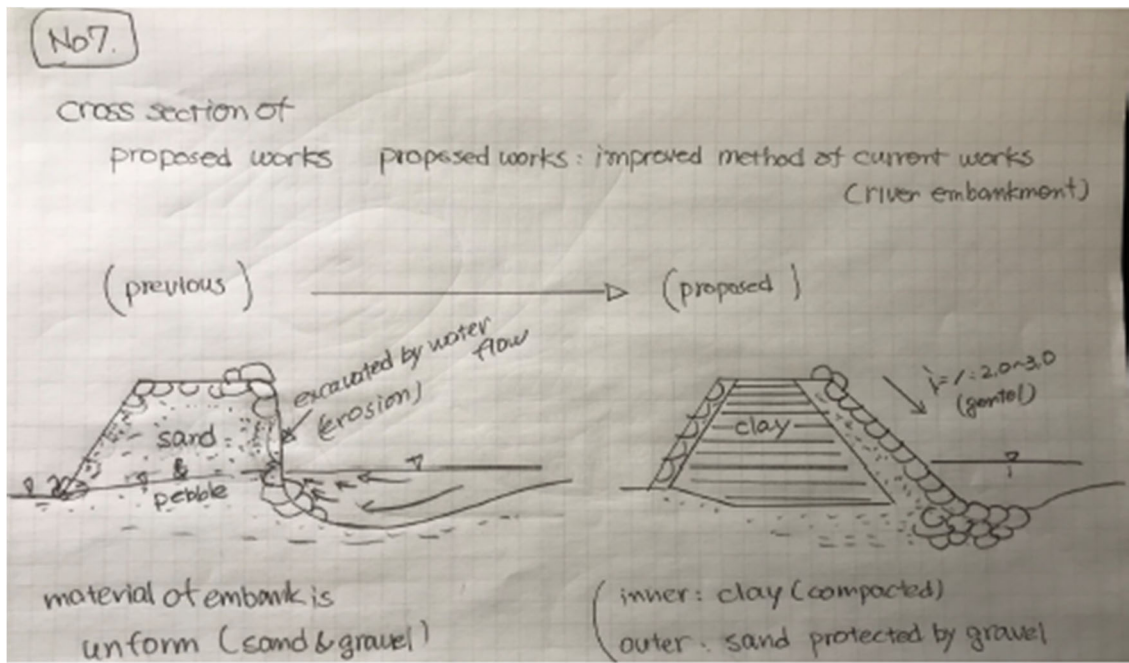
写真 No. 6 サイト斜面の状況

	
<p>サイト全景（GE が場所を提示）</p>	<p>Mighty Net が得意な岩盤斜面ではない</p>
	
<p>現場で技術的な説明を実施</p>	

【No.7サイト：パンジャケント】



No.7サイト地形観察結果（調査団）



No.7サイト施設設置想定（調査団）

Survey of Road Traffic Condition

Recorded by _____

Medium Small

Site No 7 Name Panjshir Section

slope

M-

Traffic Along from to Panjshir (E) Panjshir from to Army (E)

Time (15:30) (16:00)	Heavy		Medium	Light	Total	Heavy		Medium	Light	Total
	Dump	Trucks Trailer				Dump	Truck Trailer			
~ Cars	8	14	9	50	81	4	16	8	55	90
~ People	18	47	19	156	240	9	86	26	122	203

No.7交通量調査（調査団）

写真 No. 7サイト斜面の状況

	
サイト位置：河川水流により沿川の土地が浸食を受け、道路を脅かしている	SEHM では、捨石工を施すが、水流が強く堤防が流されてしまうため提案製品を期待
	
工法選定の検討では、土質の工夫により堤防の強化（従来技術の改良）を提案	鉄塔基礎の地盤も侵食される程、河川の浸食が強い

**SDGs BUSINESS MODEL FORMULATION SURVEY WITH THE
PRIVATE SECTOR FOR ROAD SLOPE PROTECTION FACILITIES IN
REPUBLIC OF TAJIKISTAN**

**MEMORANDUM
MINISTRY OF TRANSPORT OF THE REPUBLIC OF TAJIKISTAN
AND
TOKYO ROPE MFG CO., LTD OF JAPAN**

Ministry of Transport of the Republic of Tajikistan (hereinafter referred to as "MoT") and Tokyo Rope MFG Co., LTD. (hereinafter referred to as "Tokyo Rope") had a series of discussions to define the activities and outputs in the "SDGs BUSINESS MODEL FORMULATION SURVEY WITH THE PRIVATE SECTOR FOR ROAD SLOPE PROTECTION FACILITIES IN REPUBLIC OF TAJIKISTAN", which will be obtained by bidding for future JICA's invitation of SDGs Business Model Formulation with the Private Sectors referred to as this "Project", agreed on the following:

The Project will be implemented under the framework of SDGs Business Model "SDGs BUSINESS MODEL FORMULATION SURVEY WITH THE PRIVATE SECTOR FOR ROAD SLOPE PROTECTION FACILITIES IN REPUBLIC OF TAJIKISTAN" as a part of the JICA's public-private partnership programs to demonstrate Japanese enterprises' technologies that respond effectively to specific development challenges.

The materials/tools/equipment will be provided for below 3 sites.

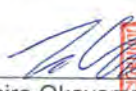
1. Site 1: Norak which is located along the Dushanbe- Aghbai Kulma International Road whose section is ranged from 47.00 km to 48.00 km (kilo post). The products implemented is Mighty Net® -1000m²
2. Site 5: Rasht which is located along the Vahdat-Rasht-Lakhsh International Road whose section is ranged from 162 to 163 km. The products implemented is Rock Box® with the length of 200m
3. Site 6: Ayni which is located at 11km+200 from Ayni along the Ayni-Panjakent International Road. The products implemented is Mighty Net® -1000m².

The products implemented will be produced by Tokyo Rope MFG CO., LTD. The scope of the Project includes Production, Transportation, Technical support (Experts from Tokyo Rope MFG CO., LTD., Training/seminar in Japan and Site activity support (Fuel, Food and etc.)

MoT and Tokyo Rope agreed on the activities and outputs described in the Annex 1 "Activities and Outputs taken by MoT and Tokyo Rope.


Rahim Bobozoda
First Deputy Minister of Transport of the
Republic of Tajikistan




Takahiro Okayama
General Manager
TOKYO ROPE MFG CO., LTD.



Discussions for Future Pilot Project

23rd August 2022
Between MoT and Tokyo Rope

Agenda

1. Review of Results of Survey
2. Explanation of Funding Scheme
3. Proposal of Future Pilot Project
4. Discussion
5. Minutes of Understanding

SDG s Business Model Formulation Survey with the Private Sector for Road Slope Protection Facilities

TOKYO ROPE MFG. CO., LTD. (Chuo-ku, Tokyo)



Development Issues Concerned in XX Sector

- To secure the people's mobility on the road in the disasters for daily life and taking the education.
- To strengthen the traffic on the road in the disasters so that the transportation of materials will be enhanced for logistics.

Products/Technologies of the Company

- Proposal Product 1 : TR Rock Box® is tough gabion units to form the rock protection wall
- Proposal Product 2: Mighty Net® is the flexible wire net to fundamentally protect the rock fall on the road slope.

Survey Outline

- Survey Duration : October, 2021 ~ November 2022
- Country/Area : Dushanbe city, Sughd Province, Rasht Area in Tajikistan
- Name of Counterpart : Ministry of Transport in Tajikistan, Dushanbe city Authority
- Survey Overview : The survey and analysis of related information and proposal of future pilot project introducing the TR Rock Box and Mighty Net will be implemented in this project.



How to Approach to the Development Issues

- Approach: New marketing approach will be adopted so that difference against the conventional products will be stressed in the aspect of Life Cycle Cost Value and High Maintenance Performance.
- Model: Differentiation of the Products (Wide range of related products such as Box/Net/Wire/Fence)
- Revenue: Counterparts' Annual Budget for preventive countermeasure account for road slope protection

Expected Impact in the Country

- Enhancing the traffic capacity in the disaster along the mountainous road.
- Reducing the traffic disruption (time and occurrence) in the logistics.
- Improving the Quality of Life in the daily activity in the local community where road extends.

As of September 2021

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Agenda

1. Review of Results of Survey

7 sites were proposed for candidate sites of Gabion Boxes & Mighty Net on July 2021

Information on selected site sections for Gabion boxes and Mighty Nets for prevention measures for Gabion Grant Aid Project

No	Name of the road	Road Value	Kilo Post From km to km	Quantity	Prevention measures	Name of districts
1	Dushanbe-Aghbai Kulma Road	International	47+00 to 48+00	1000 m ²	Slope protection (Mighty Net)	Norak district(Hissor SETM)
2	Dushanbe-Aghbai Kulma Road	International	87+500 to 87+600	100 m	River Bank Strengthening (Gabion Boxes)	Danghara district(Kulob SETM)
3	Dushanbe-Aghbai Kulma Road	International	260+100 to 260+200	1000 m ²	Slope protection (Mighty Net)	Yakhchipun district(Kulob SETM)
4	Vahdat-Romit Road	Republican	22+150 to 22+200	50 m	River Bank Strengthening (Gabion Boxes)	Vahdat district(Hissor SETM)
5	Vahdat-Rasht-Lakhsh Road	International	162+00 to 163+00	100 m	River Bank Strengthening (Gabion Boxes)	Rasht district(Rasht SETM)
6	Ayni-Kuhistoni Mastchoh Road	Republican	42+00 to 45+00	1000 m ²	Slope protection (Mighty Net)	Ayni district(Sughd SETM)
7	Ayni-Panjakent Road	International	84+150 to 84+200	50 m	River Bank Strengthening (Gabion Boxes)	Panjakent district(Sughd SETM)
Total				3 000 m ²	Slope protection (Mighty Net)	
				300 m	River Bank Strengthening (Gabion Boxes)	

Head of Road Construction and Maintenance Department Valizoda Rustam
Person in charged: Sangakov Burkhoniddin

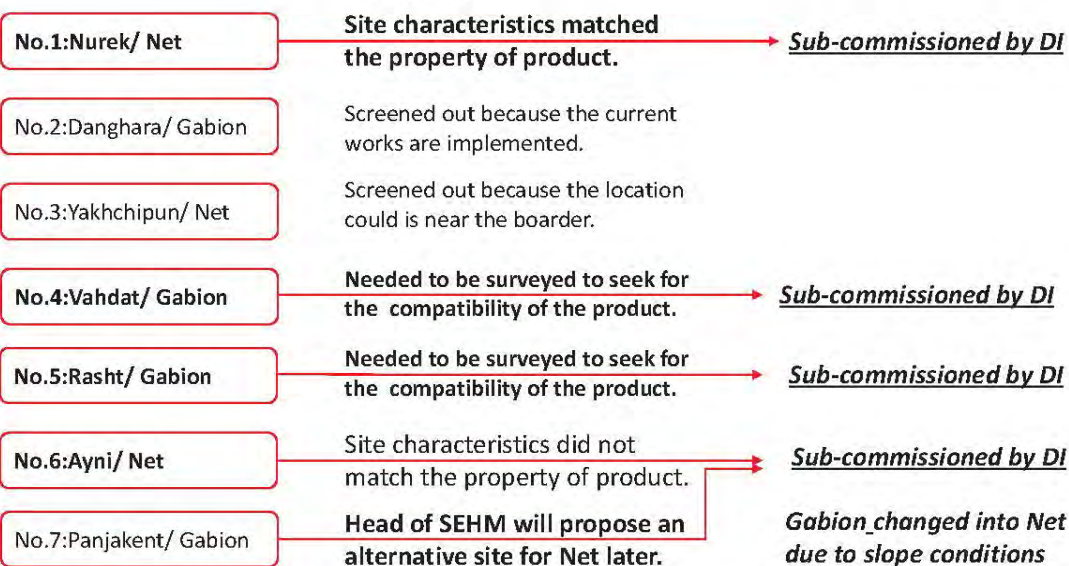
P2

7 sites were screened under the purveyance and then focused into 4 sites

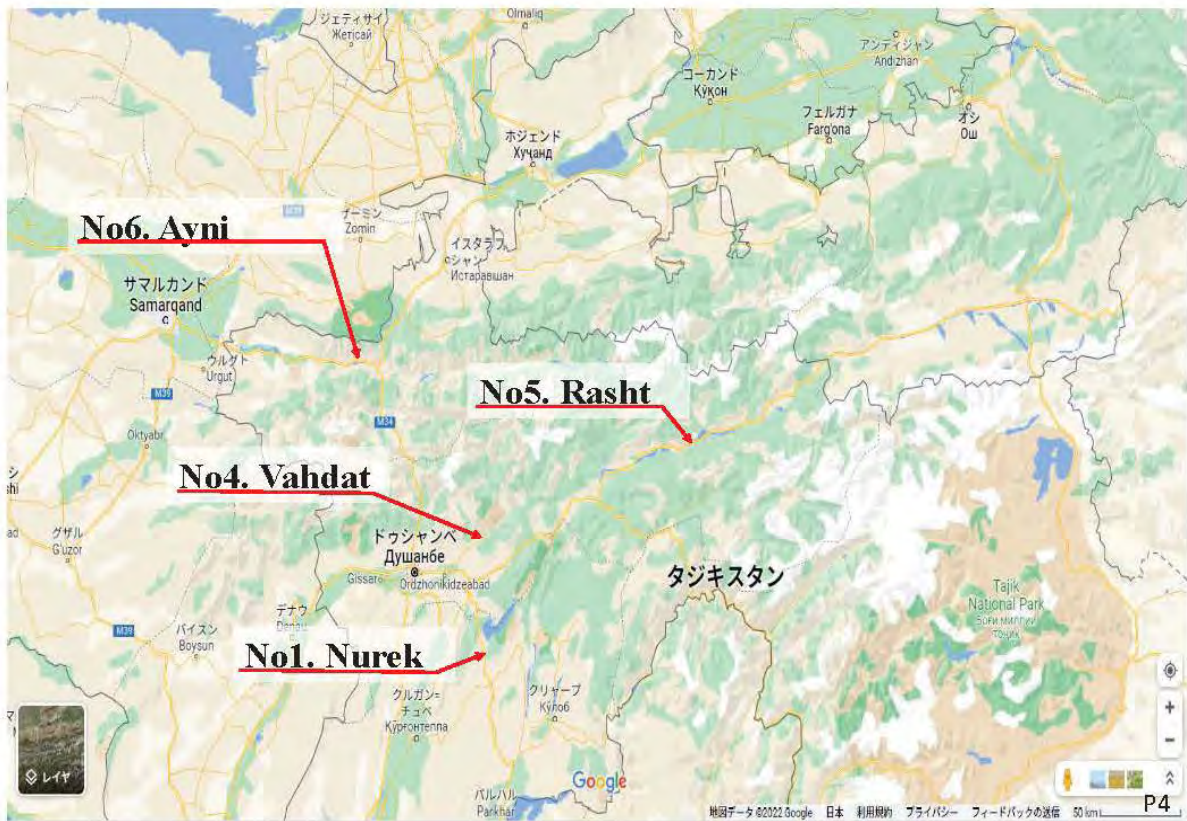
Sites proposed by MoT

Decision and Screened by Tokyo Rope

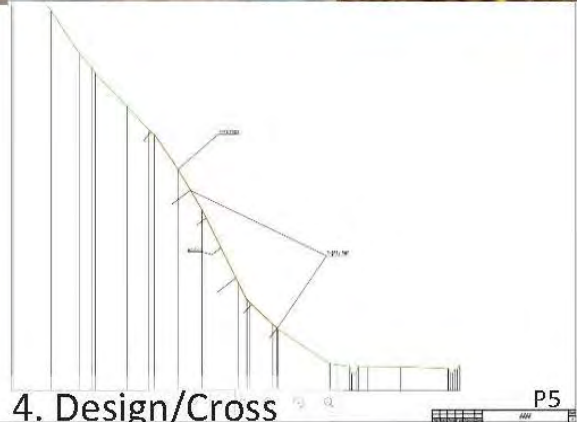
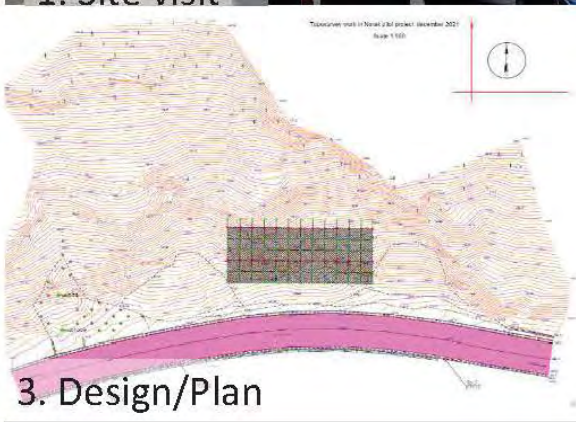
To be implemented by DI



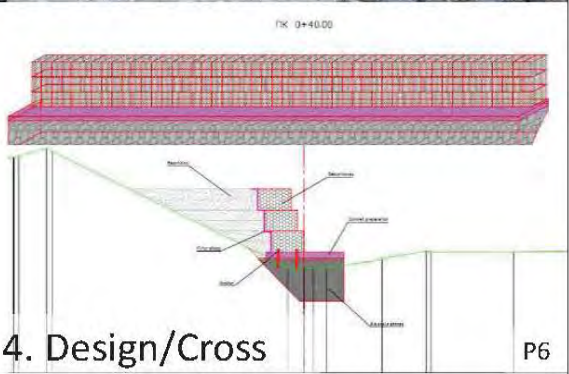
P3



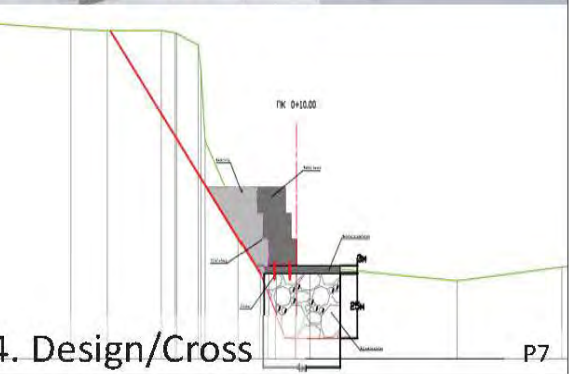
No.1 : Nurek/ Mighty Net (Net)



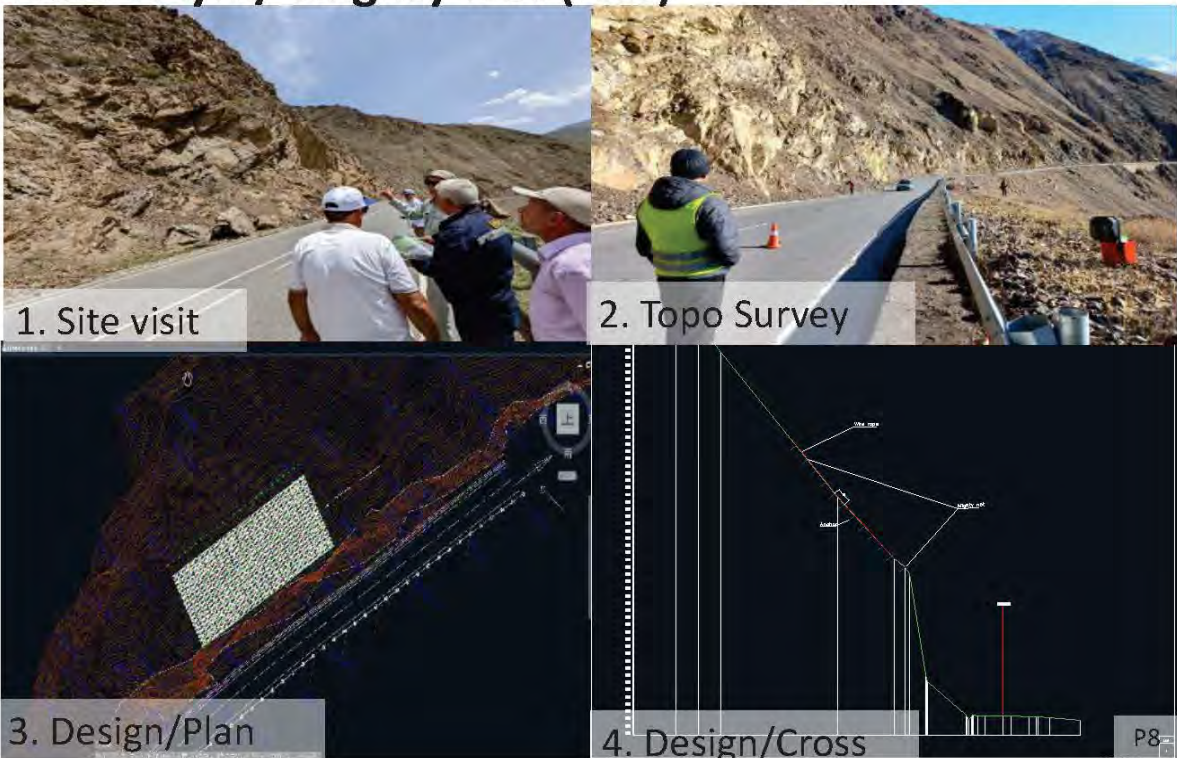
No.4 : Vahdat/ Rock Box (Gabion)



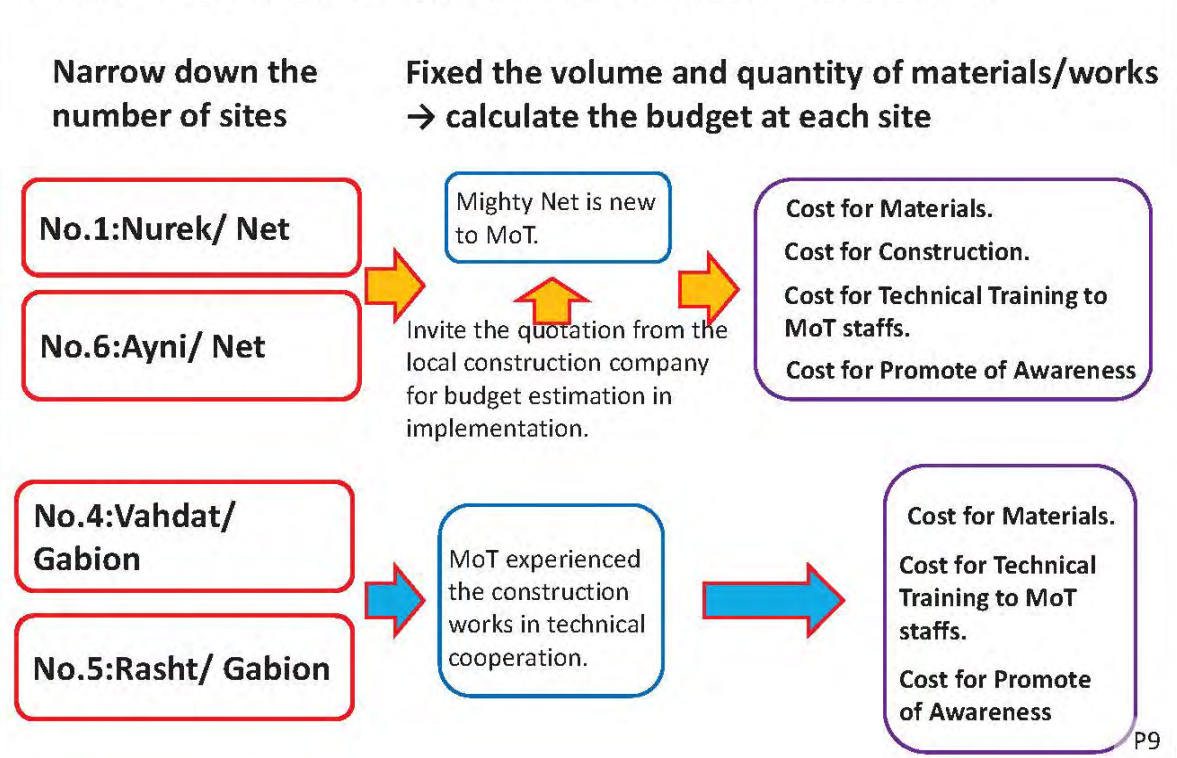
No.5 : Rasht/ Rock Box (Gabion)



No.6 : Ayni/ Mighty Net (Net)



Procedure of works after 4 sites selected.



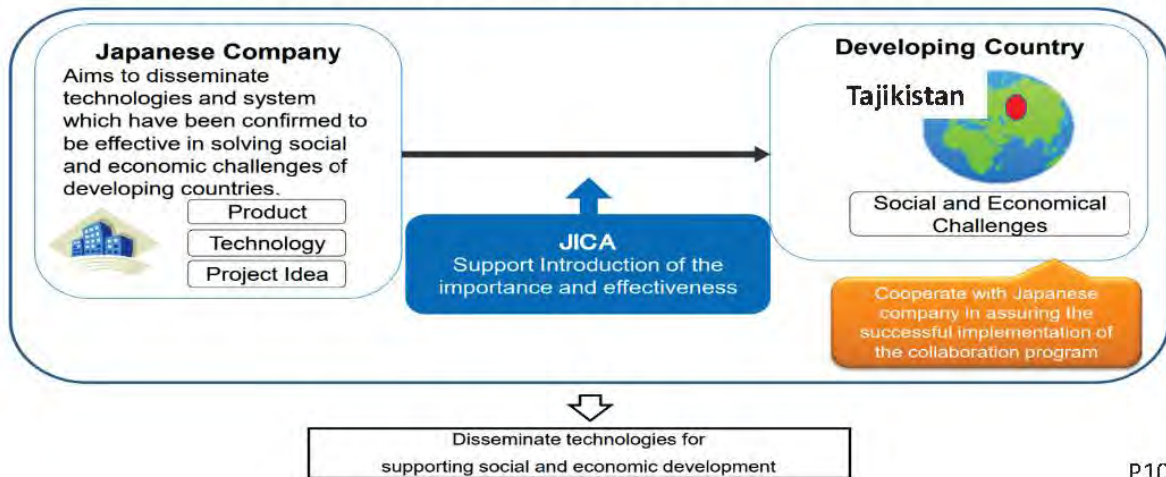
Agenda

2. Explanation of Funding Scheme



COLLABORATION PROGRAM WITH THE PRIVATE SECTOR FOR DISSEMINATING JAPANESE TECHNOLOGY

To introduce products, techniques, know-hows and systems of the Japanese private sector through inviting relevant officials to Japan and holding workshops/seminars in developing countries for the future adaptation.

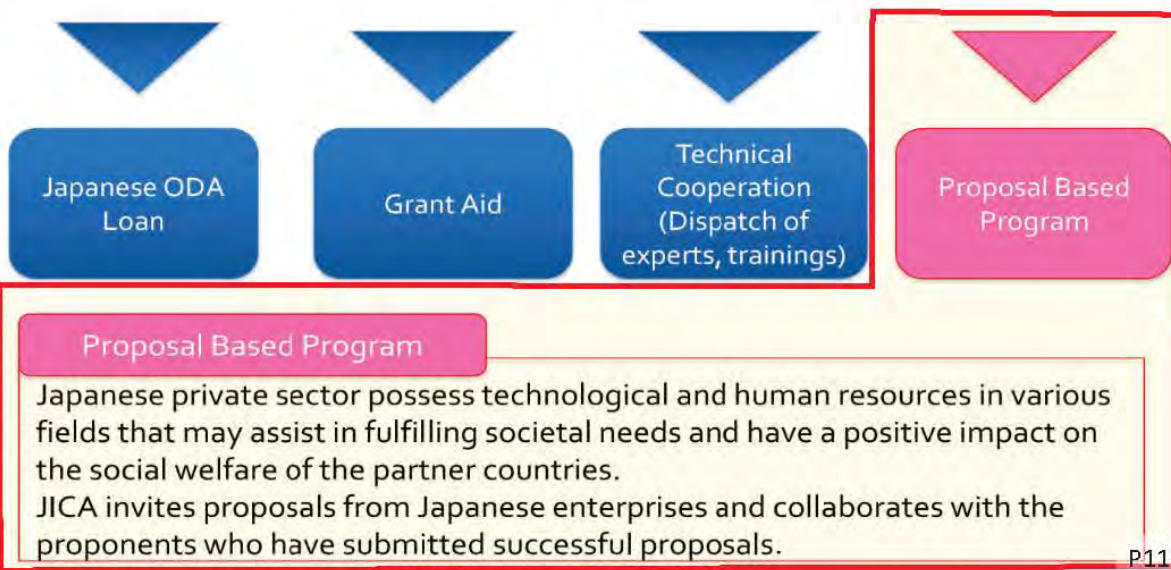


P10



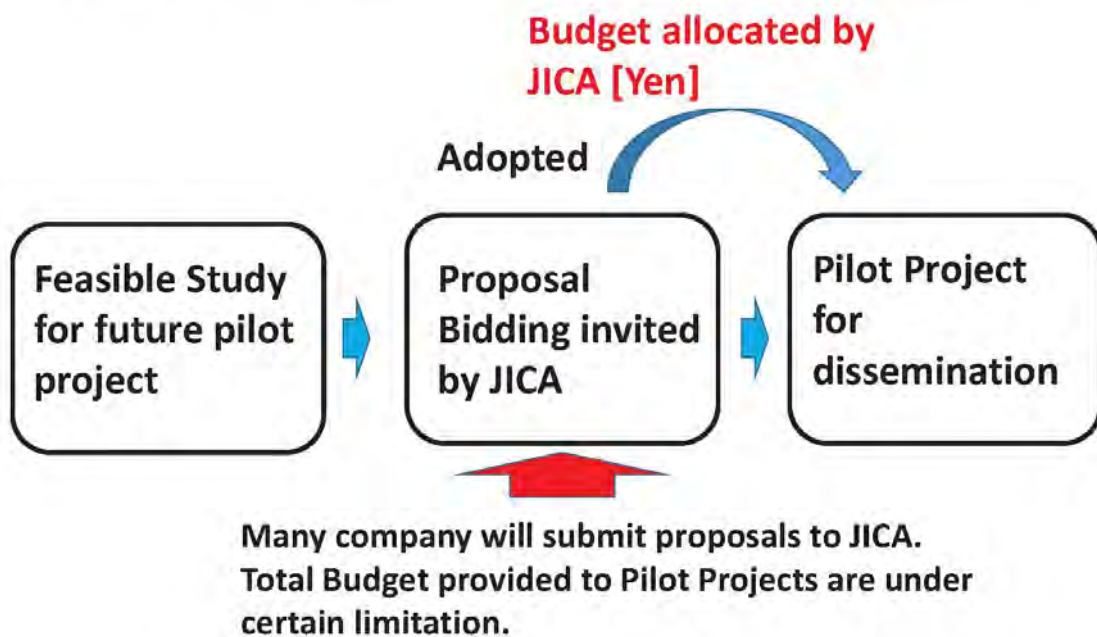
JICA's Partnership with the Japanese Private Sector

By utilizing various schemes, JICA will collaborate with the Japanese private sector to conduct ODA more efficiently and effectively.



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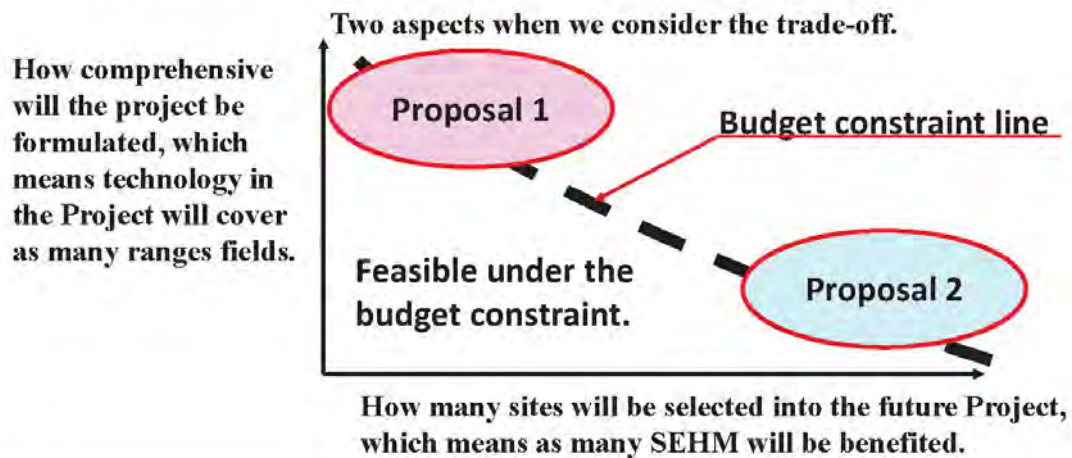
Proposed Based Competition for Pilots Project



P12

Budget for Pilot Project is under a certain ceiling.

1. **Total Budget Ceiling : 100 Million [Yen]**
2. **Many items are included in the Budget.**
3. **Thus Trading-off (Compromise) occurred**
4. **Trade-off may require the negotiation.**



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Agenda

3. Proposal of Future Pilot Project

Proposal 1

Product: Mighty Net at 1 site
Construction included at Nurek (No.1)
Construction is demonstrated at MoT for Pilot.

Proposal 2

Products: Mighty Net at 2 sites, Rock Box at 1 site.
Products will be provided to MoT.

Constructed at site.

Transported at marine/rail.



Products/Materials stored at Depo. at Vahdat



Proposal 3

			Provision of products/services in the proposal					Total Budget	Remarks
			Materials/Tools/Equipment	Construction service	Fuel/Lunch	Technical support by Japanese experts	Training in Japan		
No.1	Nurek	Mighty Net	Yes	-	Yes	Yes	Yes	100 Million	A=1,000 m ²
No.5	Rasht	Rock Box (Gabion)	Yes	-	Yes	Yes	Yes		L=200m V=900m ³
No.6	Ayni	Mighty Net	Yes	-	Yes	Yes	Yes		A=1,000 m ²

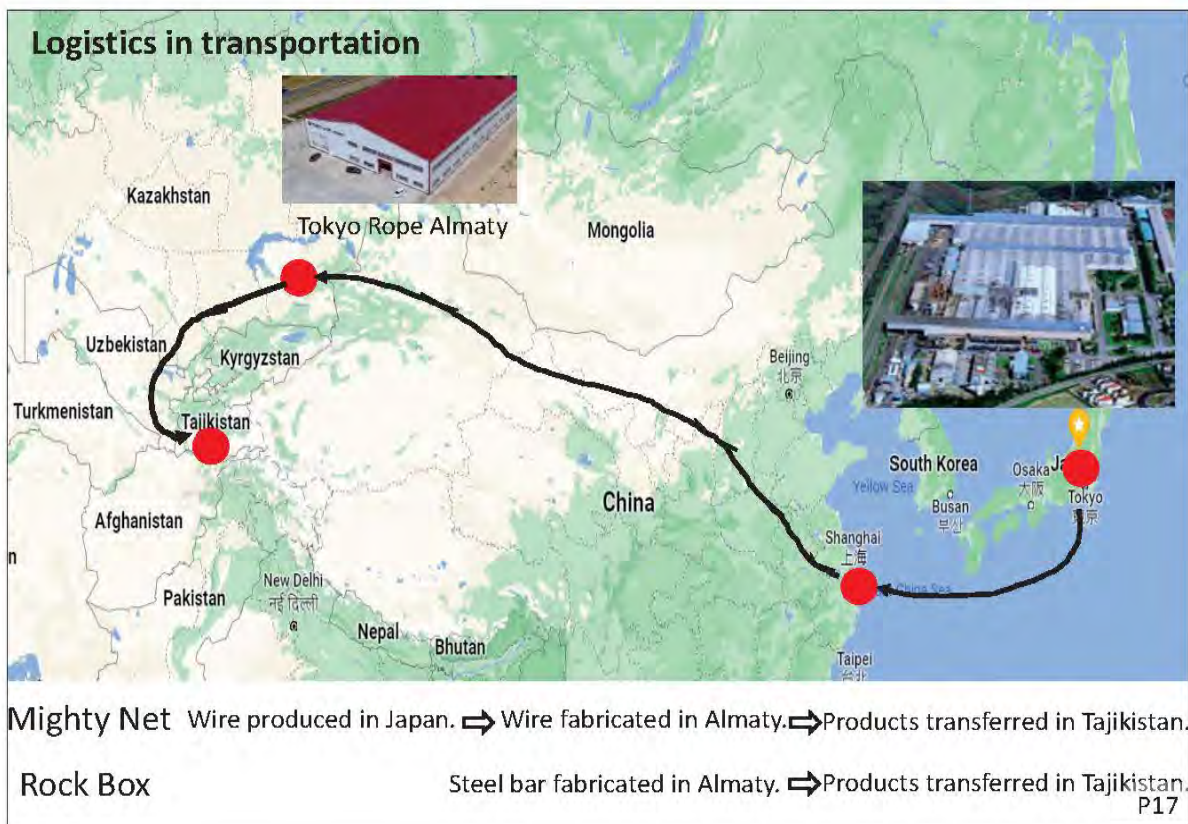
P15

Contents : Proposal 2

Inclusion: Materials Provision at Dushanbe at 2 site (Nurek, Ayni) for Mighty Net and 1 site (Rasht) for Rock Box, Fuel and miscellaneous expense (Lunch etc.), Technical instruction on How to control implementation of Mighty Net, Training in Japan.

Provision from MoT: Tax exemption at import of materials will lead to enlargement of construction area, Transportation from Depo. At Vahdat, Construction at each site, Traffic control around Pilot site, Environmental license to CEP, Assignment of chief engineer to control the construction. 7

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Site No1. Norak Mighty Net



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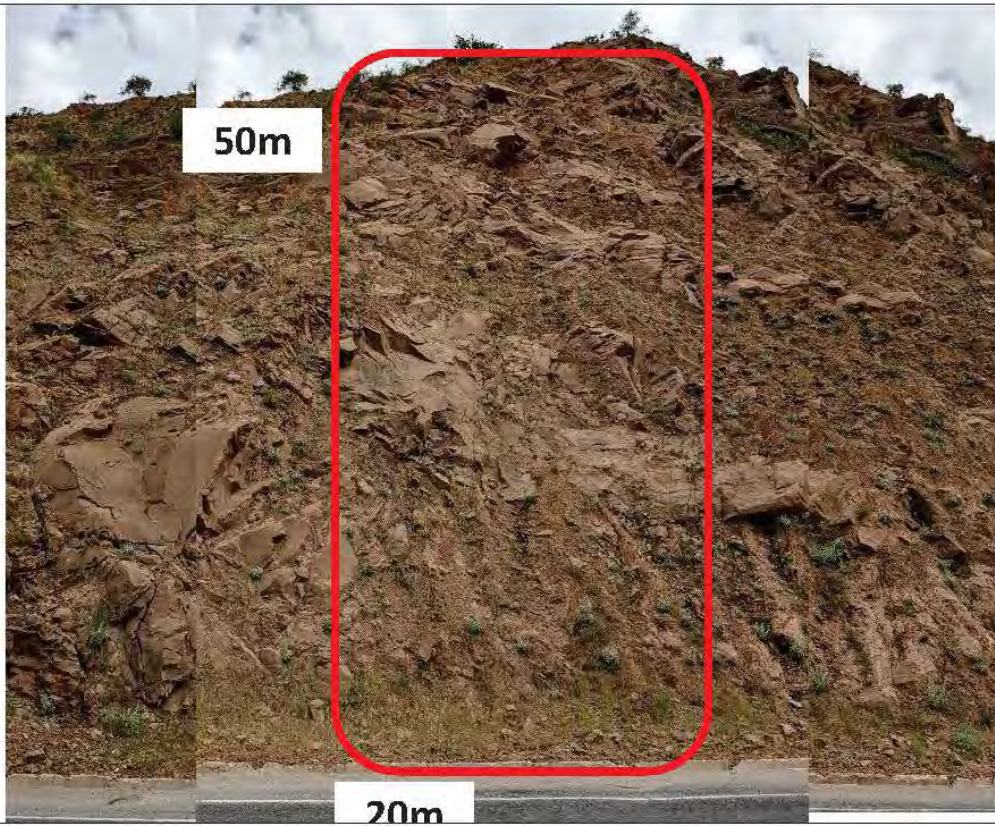


Google map
<https://www.google.com/maps/@38.4308153,69.21724,333m/data=!3m1!1e3>

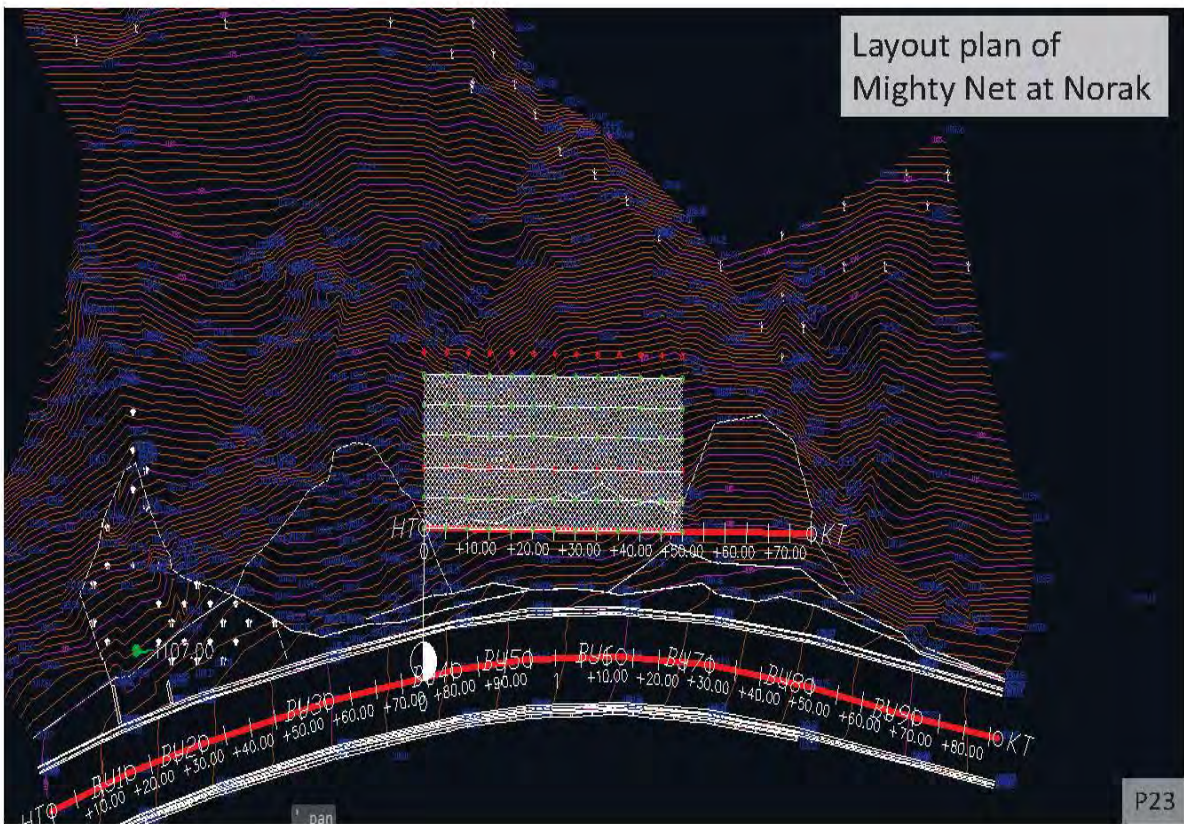
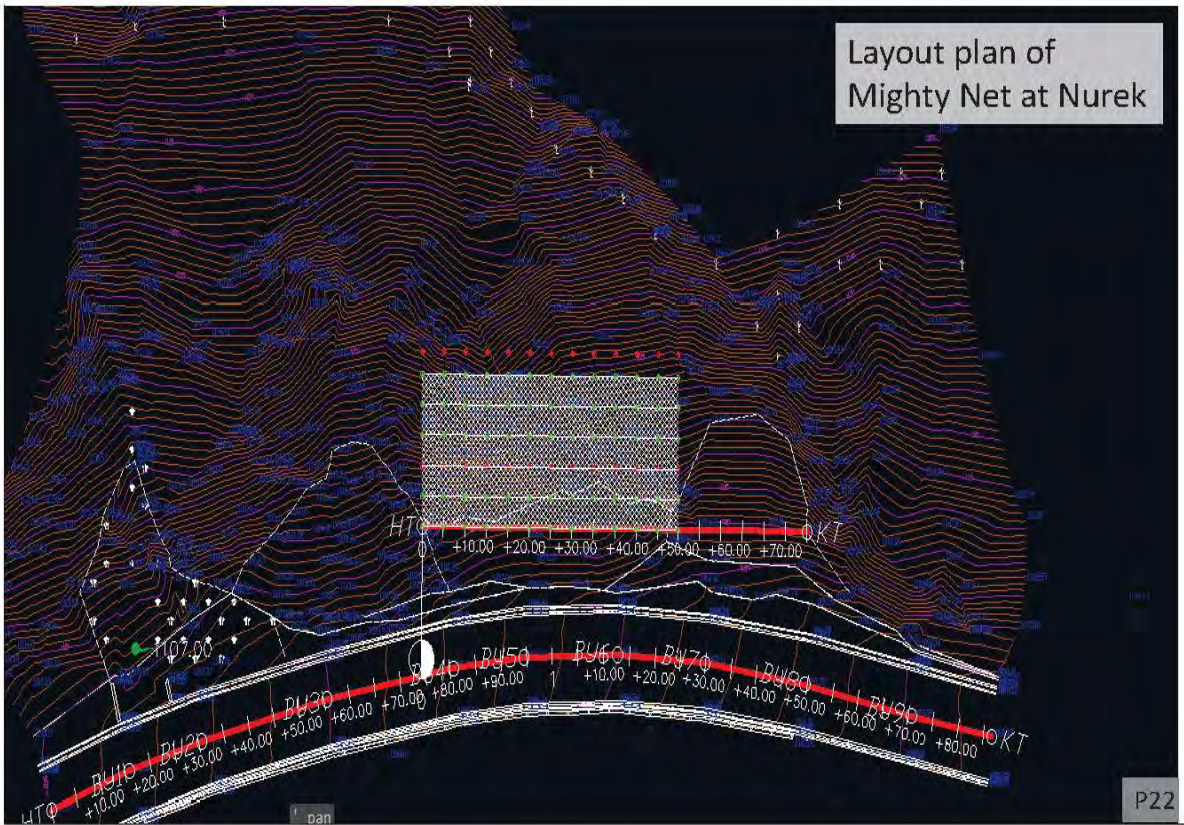
P19

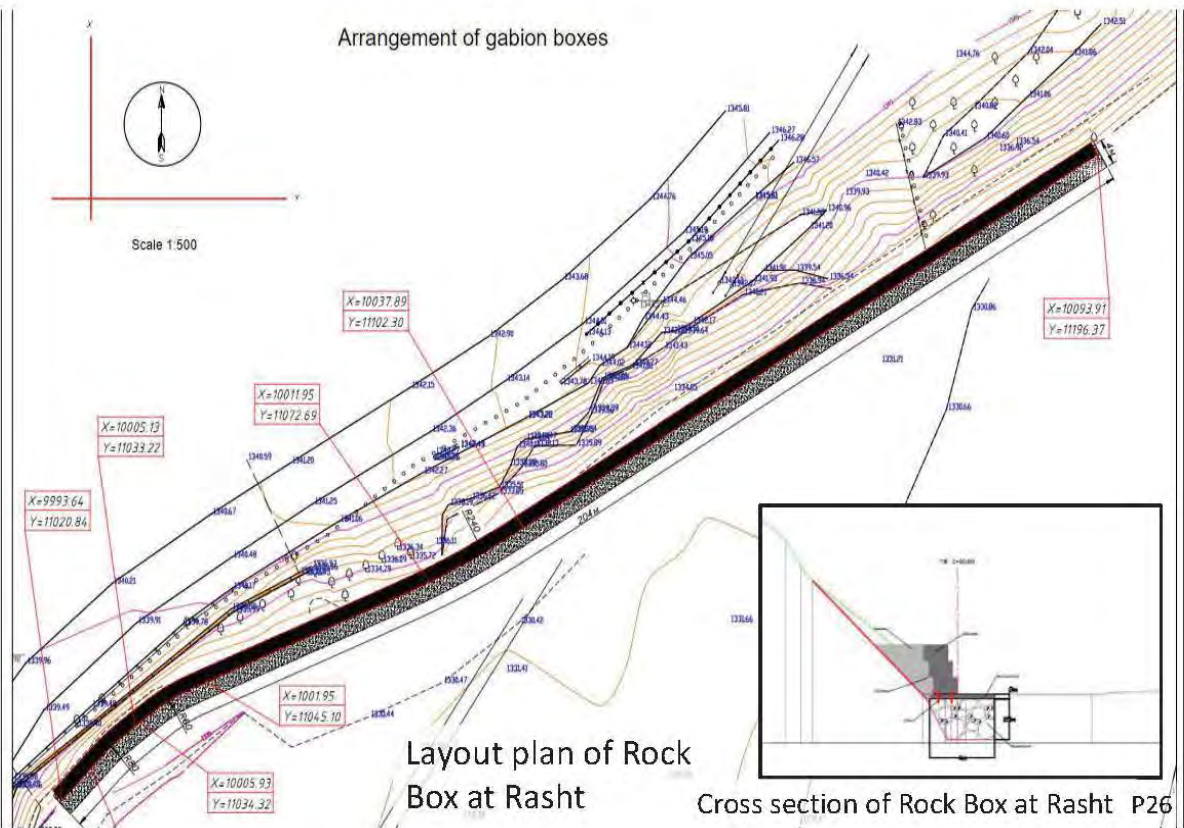


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P21





Benefits from road slope disaster prevention in Daily Life (Local Economy)

The agricultural products will be transported to city B for the marketing. But the transportation will be obstructed by slope failure so the arrival at market will be delayed and the vegetables/fruits could not be sold well, that means the loss of revenue of the farmer.



Road is disconnected by slope failure.



City B



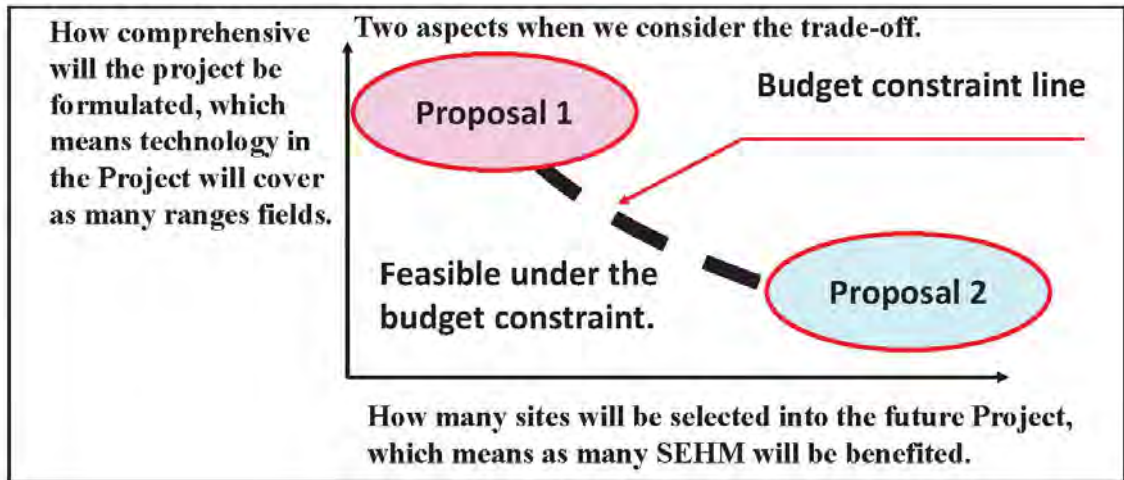
Market



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Agenda

4. Discussions



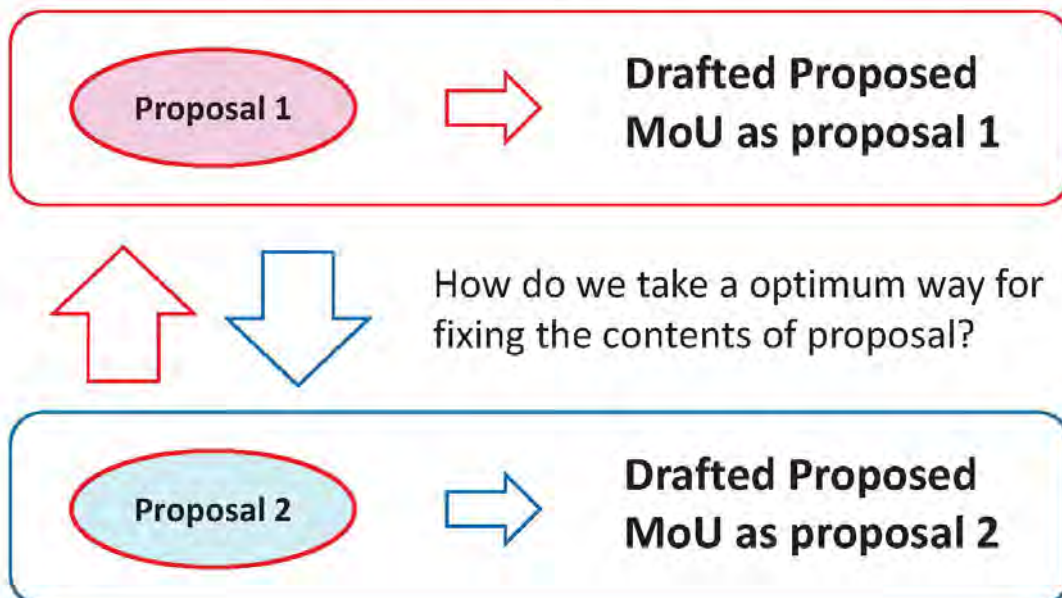
Points:

Under the above constraint, what kind of aspects will be prioritized for proposing & formulating the dissemination & pilot project as a proposal in the Benefit to Cost's aspects reflecting the strengthening the road traffic/network (Disaster prevention in the road traffic).

P29

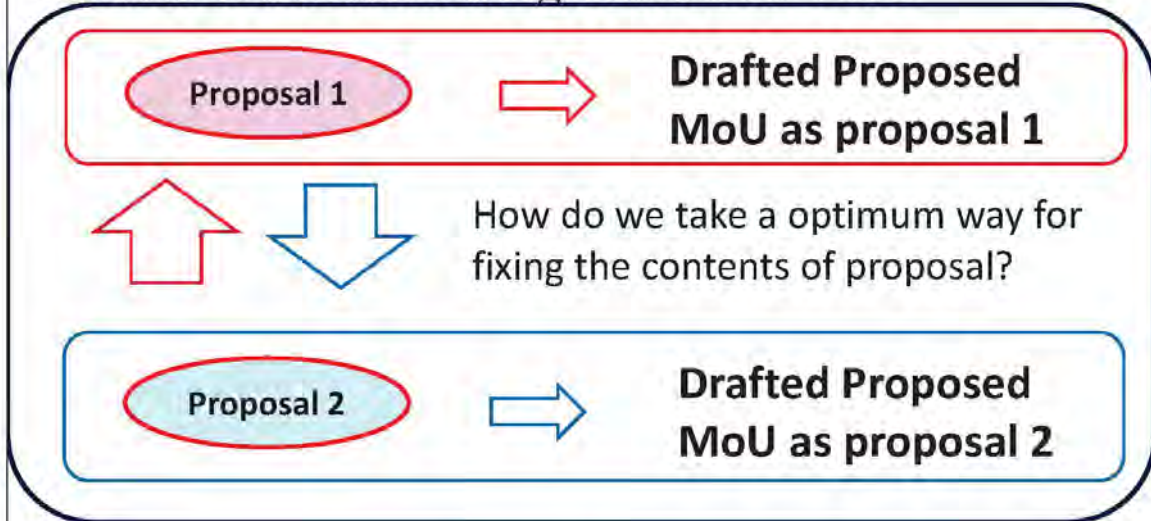
Agenda

5. Minutes of Understandings



P30

Results of discussions/Agreement for MoU



Conclusion -> revised at Propose 3

1. Proposal 2 has been accepted because of at least 3 sites included.
2. Fuel & Food (Lunch for workers) should be included into the budget.

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Breakdown of Budget at proposal 3

10.5 [Yen] = 1 [Somoni]

	Item		Rough Cost		
			[Yen]	[Somoni]	
1.	Materials 1 at Nurek	Area=1,000m ²	15,400,000	1,460,000	Cost for materials/tools/equipments
2.	Materials 2 at Ayni	Area=1,000m ²	15,400,000	1,460,000	
3.	Materials 3 at Rasht	L=200m/A=900m ²	30,000,000	2,857,000	
4.	Transportation		4,200,000	400,000	
5.	VAT,Custom		13,000,000	1,240,000	21% of Materials
6.	Technical Support		11,000,000	10,400,000	
7.	Training in Japan		2,000,000	190,000	
	Total (TAX excluded)		91,000,000	8,660,000	
	TAX		9,100,000	866,000	
	Budget ceiling		100,000,000	9,523,000	

Limitation of budget

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