

SHOPPING FOR GOODS

REQUEST FOR QUOTATION (RFQ)

For

“ADSS Extension Work to Hospitals/BHU”

DRUKREN

SASEC Information Highway Project



Royal Government of Bhutan

**Department of Information Technology & Telecom (DITT)
Ministry of Information & Communications
Thimphu Bhutan**

August 2016

Project Title: **SASEC Information Highway Project**

Source of Funding: **ADB**

Contract Ref: **0098-BHU (SF)**

Date of Issue of Request: **4 August 2016**

To: -----

Dear Sir/Madam:

1. You are hereby requested to submit price quotation/bid for the supply of ADSS fiber optic cable, fittings & accessories and Services.
2. You are required to quote for all the items under this request. Price quotations will be evaluated for all the items together and contract awarded to the firm offering the lowest evaluated total cost of all the items.
3. You shall submit one original of the Price/Bid Quotation with Form of Bid, and clearly marked "**Original**". Your quotation/bid in the attached format should be sealed in an envelope and addressed and delivered to the following address:

Purchaser's Address: **Director, DITT**
P.O Box 482, Thimphu, Bhutan
Telephone: **+975-2-323215**
Fax: **+975-2-328440**

4. Your quotation in duplicate and in English language should be accompanied by adequate **technical documentation and catalogue(s)** and other printed material or pertinent information (in English language) **for each item quoted**.
5. The deadline for receipt of your quotation (s) by the Purchaser at the address indicated in Paragraph 3 is: **22 August 2016, 10:30 AM (BST). Opening will be on the same day at 11:00 AM (BST) in New DITT conference hall.**
6. **A Pre-bid meeting** will be held on date, time and place as follows:
Date: **12 August 2016**
Time: **11:00 AM (BST)**
Place: **DITT New Conference Hall, Thimphu**
7. You quotation/bid should be submitted as per the following instructions and in accordance with the attached Contract. The attached Terms and Conditions of Supply is an integral part of the Contract.

8. **PRICES:** The prices should be quoted for supply, delivery and services of ADSS cable and extension work to the Hospitals/BHU. **Prices shall be quoted in the local currency (Ngultrum) in figure and words.** The prices quoted by the Bidder shall be **fixed and taxes exempt.**
9. **EVALUATION OF QUOTATIONS/BIDS:** Offers determined to be substantially responsive to the technical specifications will be evaluated by comparison of their prices. In evaluating the quotation/bid, the Purchaser will determine the evaluated price for each proposal by adjusting the price quotation to correct any arithmetical errors as follows:
- where there is a discrepancy between amounts in figures and in words, the amount in words will govern;
 - where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern;
 - if a Supplier refuses to accept the correction, his quotation will be rejected.
 - if any item is not quoted, for evaluation purpose the highest quote for the missing item received from other bidders will be used.
 - Non-compliance to RFQ will result in rejection of bids.
10. **AWARD OF PURCHASE ORDER:** The award will be made to the bidder offering the lowest evaluated price and that meets the technical requirements. The successful bidder will sign a Contract as per attached form of contract and terms and conditions of supply.

Further information can be obtained from:

Mr. Sonam Phuntsho/ Mr. Karma Jamyang/Ms. Thaye Choden

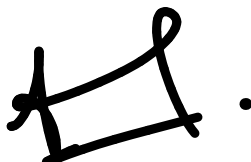
Telephone: +975-2-323215

Fax: +975-2-328440

E-mail: sphuntsho@dit.gov.bt/kjamyang@dit.gov.bt/tchoden@dit.gov.bt

11. Under ADB's Anticorruption Policy bidders shall observe the highest standard of ethics during the procurement and execution of such contracts. ADB will reject a proposal for award, and will impose sanctions on parties involved, if it determines that the bidder recommended for award or any other party, has engaged in corrupt, fraudulent, collusive, or coercive practices in competing for, or in executing, the Contract.

Sincerely,



(Jigme Tenzing)

Offtg. Director

FORM OF CONTRACT

THIS AGREEMENT number _____ made on _____, ____ 2016, between
_____ (hereinafter called “the Purchaser”) on the one part and
_____ (hereinafter called “the Supplier”) on the other part.

WHEREAS the Purchaser has requested for quotation for _____ (description of goods) to be supplied by Supplier, viz. Contract _____, (hereinafter called “Contract”) and has accepted the Bid by the Supplier for the supply of goods under Contract at the sum of _____ (_____) hereinafter called “the Contract Price”.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. The following documents shall be deemed to form and be read and construed as part of this agreement, viz:
 - a) Request for Quotation; Terms and Conditions of Supply, Technical Specification;
 - b) Addendum (if applicable);
 - c) Quotation/Bid of the Supplier;
 - d) Amendments (if any).
2. Taking into account payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby concludes an Agreement with the Purchaser to execute and complete the supply of goods under the Contract and remedy any defects therein in conformity with the provisions of the Contract.
3. The Purchaser hereby covenants to pay, in consideration of the acceptance of Contract, supply and delivery of the goods and remedying of defects therein, the Contract Price in accordance with Payment Conditions prescribed by the Contract.

IN WITNESS whereof the parties hereto have executed the Contract under the laws of Bhutan on the date indicated above.

Signature and seal of the Purchaser:
FOR AND BEHALF OF

Signature and seal of the Supplier:
FOR AND BEHALF OF

Name of Authorized Representative

Name of Authorized Representative

TERMS AND CONDITIONS OF SUPPLY

Project Name: **SASEC Information Highway**. Purchaser: **DITT, MoIC**

Consignee: _____ Package No. _____

1. Employer's Requirement, Bill of Quantities and Specifications for ADSS is given in **Annexure I- Scope of Work**.
2. **Fixed Price**: The prices indicated above are firm and fixed and not subject to any adjustment during contract performance.
3. **Completion Schedule**: The delivery, installation and commissioning at designated sites should be completed as per above schedule but not exceeding **90 days** from the date of signing of contract. Refer **Annexure II - Delivery & Work Completion Schedule for more details**.
4. **Applicable Law**: The Contract shall be interpreted in accordance with the laws of Bhutan.
5. **Resolution of Disputes**: The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute between them under or in connection with the Contract. In the case of a dispute between the Purchaser and the Supplier, the dispute shall be settled in accordance with the provisions of the arbitration law or rules of Bhutan.
6. **Pre-Delivery Requirements**: The Supplier shall ensure that the supplied items are as per the **technical catalogue submitted** in the quotation/bid in order to ensure that the supplied items are as per the quoted items. The supplier shall submit documentary proof at least one week before the arrival of the goods.
7. **Performance Security**: The supplier shall furnish the Performance Security within twenty-one (21) days of the receipt of **Notification of Award from the Purchaser**, using for that purpose the Performance Security Form as per the attached form or another form acceptable to the Purchaser. The Performance Security shall be 10% of the Contract Amount. The Performance Security shall be only released upon completion of work. However, the supplier has to furnish another Performance Security equivalent to 5 percent (5%) of the Contract Amount to cover the Supplier's warranty obligations after completion of work.
8. **Payment Terms**:
 - (i) *Advance Payment*: Ten percent (10%) of the contract price within 28 days of signing the contract. Payment shall be made provided the Supplier presents a request for payment accompanied by an Advance Payment Security in the form of a bank

guarantee for an amount equal to the amount of the payment, and that shall be valid until the Goods are delivered. The supplier shall use the attached Bank Guarantee Form or any other form acceptable to the purchaser.

(ii) *On Delivery*: Eighty Percent (80%) of the total amount of the goods supplied within 45 days upon submission of invoice

(iii) *On Acceptance*: Remaining payment shall be made within 28 days upon completion of the work and submission of claim supported by the acceptance certificates issued by the Purchaser.

9. **Warranty**: Goods offered should be covered by manufacturer's warranty for at least 12 months from the date of delivery.
10. **Packaging and Marking Instructions**: The Supplier shall provide standard packing of the Goods as required preventing their damage or deterioration during transit to their final destination, as indicated in the Contract.
11. **Defects**: Within warranty period all defects will be corrected by the Supplier without any cost to the Purchaser within **15 days** from the date of notice by Purchaser. Any item found defective or not functioning properly will be returned and delivered to the suppliers premise and within 15 days the defective item shall be replaced. Failure to replace the defective item within the stipulated time will result in deduction from the performance security.
12. **Liquidity Damage**: Applicable rate for liquidated damages is one-half percent (0.5%) per week of the total contract price. Maximum deduction for liquidated damages shall not exceed 10% of the Contract Price.
13. **Force Majeure**: The supplier shall not be liable for penalties or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

For purposes of this clause, "Force Majeure" means an events beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but not restricted to, act of Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by Force Majeure event.

14. **Documents required for submission:** The bid proposal for submission to the purchaser shall comprise of the following:

SN	List of Documents to be submitted
1	Compliance to terms & conditions and specifications
2	<i>Technical Compliance Sheet - Annexure III</i>
3	Form of Quotation/Bid duly filled
4	Valid Trade License
5	Tax Clearance Certificate
6	Bid Security
7	Product Brochure/Catalogue(s) for each and every quoted item including not not limited ADSS Fiber, FODP, Joint Enclosure, Clamps (Tension Clamps and its accessories)

15. **Failure to Perform:** The Purchaser may cancel the Agreement if the Supplier fails to deliver the Goods, in accordance with the above terms and conditions, in spite of a 21-day notice given by the Purchaser, without incurring any liability to the Supplier.

16. **Supply and Services completion report submission:** Upon completion of the supply and services a **report** shall be submitted to the purchaser.

17. **Completion Certificate:** Only on submission of supply and service completion report the purchaser will issue the project completion certificate by the purchaser.

18. **Delivery to the Site:** The supplier shall deliver the ADSS cables and accessories.

19. **Quantity:** The purchaser reserves the right to increase/decrease the quantities of item(s) mentioned in the BoQ.

20. **Bid validity:** Minimum 60 days from the date of closing of offer date. It may be extended, if required.

21. **Bid Security:** The Bidder shall furnish as part of its bid, in original form, a Bid Security. The Bid Security shall be, at the Bidder's option, in any of the following forms:
- a bank guarantee,
 - an irrevocable letter of credit; or
 - a cashier's or certified check;

all from a reputable bank from an eligible country. The amount of the bid security shall be **2% of the total bid price** and currency shall be in **Ngultrum**. The bid security validity period shall be valid for 90 days from the date of closing of offer date.

FORM OF QUOTATION

To:
 The Director,
 Department of Information Technology & Telecom,
 Ministry of Information & Communications,
 Royal Government of Bhutan.
 Thimphu: Bhutan.

We offer to execute the “**ADSS Extension Work to Hospitals/BHU**” in accordance with the Conditions of Contract accompanying this Quotation for the Contract Price of Nu..... (Figure).....(In words) We propose to complete the delivery of Goods and related services described in the Contract within 90 days from the Date of Signing of the Contract as per the Delivery & Work Completion Schedule given in *Annexure II*.

Prices and Schedules for Supply and Services

SN	Particulars	Unit	Qty.	Unit Price(Nu.)	Total Price (Nu.)
A	Goods				
1	ADSS Cable 24 core	Km			
	a. Bumthang Hospital (from T-off Point connecting Chhokhor CC)		0.3		
	b. Gedu Hospital (from Gedu BPC S/S)		0.5		
	c. Phuentsholing Hospital (Underground from Pling BPC S/S)		1		
	d. Mongar Hospital (from the T-Off point connecting Dzong, Kilikhar BPC S/S and Mongar Gewog)		0.5		
	e. Punakha Hospital		1.5		
	f. Paro Hospital (from Olathang BPC S/S)		0.4		
	g. Pemagatshel Hospital (from BPC ESD Office)		1		
	h. Samdrup Jongkhar (from T-off Point connecting Dzong, Dewathang BPC S/S and Gewog)		0.8		
	i. Kanglung BHU (from Kanglung BPC S/S)		1.5		
	j. Trongsa (from BPC ESD Office)		0.5		
	k. Wangdue Phodrang (from Rinchengang ESD Office)		1		
2	Tension clamp with complete fitting accessories(reinforcement rod, vibration damper, downlead clamp) on HT telescopic electric pole/regular HT electric Pole	Set			

	a. Bumthang Hospital- HT Pole		0		
	b. Gedu Hospital- HT Pole		11		
	c. Phuentsholing Hospital (UG)		0		
	d. Mongar Hospital- HT Pole		2		
	e. Punakha Hospital- HT Pole		16		
	f. Paro Hospital- HT Pole		5		
	g. Pemagatshel Hospital		0		
	h. Samdrup Jongkhar- HT Pole		15		
	i. Kanglung BHU		19		
	j. Trongsa		0		
	k. Wangdue Phodrang- HT Pole		11		
3	Tension clamp with complete fitting accessories(reinforcement rod, vibration damper, downlead clamp) on LT electric pole				
	a. Pemagatshel		21		
	b. Trongsa		5		
	c. Bumthang		1		
4	cable cross arm with fitting accessories on HT and LT poles (for looping)				
	a. Hospitals		6		
5	FODP (12 Port WALL-mountable with SC-SC Adapter Plate, splicing tray with SC pigtail) for 12 Hospitals	No.	12		
6	Outdoor Joint Enclosure 4 way Non-Metallic (Pole Type) with Clamp	No.			
	a. Mongar Hospital, Bumthang, Samdrup Jongkhar		3		
7	HDPE pipe				
	a. Phuentsholing Hospital	km	0.3		
	b. Mongar Hospital	km	0.1		
8	GI Pipe 1.5" 12 Feet with Union	Nos	5		
	a. Phuentsholing Hospital	Nos	5		
	b. Mongar Hospital	Nos	5		
Sub- Total (A)					
B	Services				
1	Transportation, Installation & Commissioning of ADSS	Km	11		
2	UG ADSS fiber optic cable inclusive of transportation, trenching, refilling, and laying of cable (Phuentsholing & Mongar)	km	1.5		
Sub- Total (B)					
Grand Total (A+B)					

NOTE:

1. Tentative list of items and services are highlighted in the above table. Bidder shall be responsible to conduct detailed survey to determine the exact quantity required. In case, any additional quantity of the items required for the successful implementation of the project, the same shall be provided by the bidder free of cost.
2. Tentative Network Design is given in **Annexure IV** - Tentative Network Design.
3. The prices quoted by the Bidder shall **be fixed and taxes exempt**.
4. The price should include the transportation cost up to designated sites, storage cost & project management cost.
5. Total quoted prices should be in local currency (Nu.) in figures and words
6. In case of discrepancy between Unit Price and Total derived from unit price, unit price shall prevail.

This Quotation and your written acceptance will constitute a binding Contract between us. We understand that you are not bound to accept the lowest or any Quotation you receive.

We hereby confirm that this Quotation complies with the Validity of the Quotation required by the Request for Quotation document.

Authorized Signature:

Name and Title of Signatory:

Name of Supplier:

Address : Thimphu Bhutan

Phone Number : 00975-2-

Fax Number, if any: 00975-2-.....

Annexure 1 – SCOPE OF WORK

1. DrukREN Project Background: SASEC IH Project

The National Research and Education Network - DrukREN - will consist of a fiber-optic network using the existing OPGW will be an extension to the already established SASEC fiber network. Border Gateways are constructed in two fiber optic routes from Thimphu to Phuentsholing, and Thimphu to Gelephu. This fiber-optic network will further be extended to eastern side of Bhutan. A 10 Gigabit per second fibre optic backbone will be established interconnecting all the research and education institutes in the country.

Research and Education institutes including District Hospitals will be connected to 10 Gigabit per second fiber optic backbone.

For this RFQ, contractor shall build last mile fiber connection from the 11 identified hospitals to 10 Gigabit DrukREN backbone.

2. FUNDING SOURCE

The funding for the scope of work given below shall be met through the Asian Development Bank (ADB) assisted by SASEC Information Highway Project. The administrative documentation requirement such as segregation of the Bill of material and amount of works shall be furnished by bidders.

3. SCOPE OF WORK

The winning bidder shall extend ADSS fiber from the best possible nearest BPC Substation/ESD Office/BPC T-Off Point (Outdoor Joint Box)/Dzongs to the identified hospitals.

3.1 SCOPE OF WORK

- 3.1.1 Supply of ADSS cable, transportation, tapping, stringing/laying, mounting, installation, testing and commissioning on site of ADSS cable between the nearest BPC Substation/ESD Office/BPC T-Off Point (Outdoor Joint Box)/Dzongs and hospitals;
- 3.1.2 Splicing and termination;
- 3.1.3 The optical termination box shall be installed wherever required;
- 3.1.4 Sufficient cable loop for maintenance in the future shall be kept; and
- 3.1.5 Dispose off unwanted materials in a safe and environment friendly manner.

4. OTHER TERMS & CONDITIONS

- a. The payment to the Supplier shall be made as per the payment terms as stipulated in the Terms and Conditions
- b. Provide complete test results of the fiber – *Optical power, fiber losses and bandwidth /dispersion*

5. SUBMISSION OF ADSS FIBER TEST RESULT SCHEDULE

The winning Supplier shall submit on completion of the work the following:

- a. Test results upon completion of fiber link.

6. SPECIFICATIONS

A. ADSS SPECIFICATIONS

SN	Parameters	Unit	Particular/Description
1	No. Of Fibres DWDM (Dual Window Single Mode)	Nos.	24F
2	Type of Fiber		Single Mode, ITU-T G652D
3	Strength Member		Aramid yarn
4	DWDM optical color		Blue, orange, green and natural
5	Overall diameter of the cable	mm	14 mm, ± 0.5 mm
6	Overall weight of the cable	Kg	165 ± 20 Kg/Km
7	Minimum bend radius	mm	280 mm
8	Tensile strength	KN	12 KN
9	No. Of Fibers per tube	Nos.	6
10	Operating temperature		-30 ° C to + 70 ° C

B. ADSS OPTICAL PARAMETERS

SN	Parameters	Unit	Particular/Description
1.	Attenuation Coefficient		
2.	@ 1310 nm	dB/km	≤ 0.35
3.	@ 1550 nm		≤ 0.23
4.	Mode field diameter	µm	9.2
5.	Deviation in mode field diameter	µm	± 0.5

6.	Attenuation variation with wavelength (± 25 nm) Temperature	dB/km	± 0.05
7.	Mode field non-circularity	%	6
8.	Chromatic Dispersion		
	@ 1310 (1288 - 1339)nm	ps/nm ² km	3.5
	@ 1310 (1271 - 1360)nm		6
	@ 1550nm		20
9.	Zero dispersion wavelength	nm	1300 - 1324
10.	Zero dispersion slope	ps/nm ² km	≤ 0.092
11.	Refractive index		1.47
12.	Refractive index profile		Step Index
13.	Cladding design		Matched
14.	Numerical aperture		0.1
15.	Bandwidth distance product	MHz km	NA
16.	Bend Performance (37.5 mm radius, 100 turns)		< 0.05 dB

24 FIBER OPTIC SPLICE CLOSURE (Outdoor)

- Simplex
- Feeder / Distribution=2/4,
- Splice capacity per tray=12C,
- No. of splice tray=4,
- Max. Capacity= 24 C,
- Installation type=Aerial

D. FODP (Wall Mountable)

- 24 Fiber Splicing / Patching Modules
- Fiber Capacity=24 ,
- Number of Splice Tray=2,
- Splice Tray Capacity=24,
- Wall Mountable

ANNEXURE II: Delivery and Work Completion Schedule

The due date for the completion of supply of equipment and accessories and installation of equipment and service delivery in accordance with the provisions of contract shall be:

- Within 90 days(Ninety Days) from the day of signing the contract

SNo	Work Schedule	Completion days	Remarks
1	Vendor selection, Notification of Award/Contract Signing	Base Day(B)	
2	Supply of equipment and accessories	B+60	
3	Transportation, Installation and Configuration of equipment, testing and commissioning	B+90	
	Total number of days	90 Days	

Annexure III: Technical Compliance Sheet

SN	Items	Specifications			Qty.	Model Number	(Complied/Not Complied)
		Parameters	Units	Particular description			
1	ADSS	No. Of Fibres DWSM (Dual Window Single Mode)	Nos.	24F			
		Type of Fiber		Single Mode, ITU-T G652D			
		Strength Member		Aramid yarn			
		DWSM optical color		Blue, orange, green and natural			
		Overall diameter of the cable	mm	14 mm, ± 0.5 mm			
		Overall weight of the cable	Kg	165 ± 20 Kg/Km			
		Minimum bend radius	mm	280 mm			
		Tensile strength		12 KN			
		No. Of Fibers per tube	Nos.	6			
		Operating temperature		-30 ° C to + 70 ° C			
		Attenuation Coefficient					
		@ 1310 nm	dB/km	≤ 0.35			
		@ 1550 nm		≤ 0.23			
		Mode field diameter	µm	9.2			
		Deviation in mode field diameter	µm	± 0.5			
		Attenuation variation with wavelength (± 25 nm) Temperature	dB/km	± 0.05			
		Mode field non-circularity	%	6			
		Chromatic Dispersion					
@ 1310 (1288 - 1339)nm	ps/nm ² km	3.5					
@ 1310 (1271 - 1360)nm		6					

Bidder shall indicate Exact ADSS Model No. Bidder shall also provide Product Brochure/Catalogue.

		@ 1550nm		20		
		Zero dispersion wavelength	nm	1300 - 1324		
		Zero dispersion slope	ps/nm ² km	≤ 0.092		
		Refractive index		1.47		
		Refractive index profile		Step Index		
		Cladding design		Matched		
		Numerical aperture		0.1		
		Bandwidth distance product	MHz km	NA		
		Bend Performance (37.5 mm radius, 100 turns)		< 0.05 dB		
2	24 FIBER OPTIC SPLICE CLOSURE (Outdoor)	Simplex				Bidder shall indicate Exact model of 24 Fiber Optic Splice Closure. Bidder shall also provide Product Brochure/Catalogue.
		Feeder / Distribution=2/4,				
		Splice capacity per tray=12C,				
		No. of splice tray=4,				
		Max. Capacity= 24 C,				
		Installation type=Aerial				
3	FODP	24 Fiber Splicing / Patching Modules				Bidder shall indicate Exact model of FODP. Bidder shall also provide Product Brochure/Catalogue.
		Fiber Capacity=24 ,				
		Number of Splice Tray=2,				
		Splice Tray Capacity=24,				
		Provides excellent fiber cord management				
		Wall Mountable				

Note: Bidder shall submit aforementioned Table along with their quotation. The bidder must fill up the Compliance/Non-compliance Column indicated in the table above.

Annexure IV - Tentative Network Designs

Annexure IV: Tentative Network Design

The Contractor shall connect hospitals of 10 dzongkhags namely **Paro, Punakha, Chukha (Gedu and Phuntsholing), Wangdiphodrang, Trongsa, Bumthang, Mongar, Pemagatshel, Trashigang (Kanglung), and Samdrup Jongkhar**. A total of 11 Hospitals under these dzongkhags have been identified to be connected to DrukREN using ADSS fiber as it is only technically feasible to connect to the DrukREN based on the current DrukREN 10 gig network design. In the future more hospitals will be identified and connected.

Respective Dzongkhag ICT Officers visited the site to carry out the detailed survey - *Aerial Distance, Number & Type of Distribution Poles between Hospital and BPC-Substation/Dzong/T-Off Point/BPC-ESD Office*. Tentative list of items and services are highlighted in the *Form of Quotation*. Bidder shall be responsible to conduct detailed survey to determine the exact quantity required. In case, any additional quantity of the items required for the successful implementation of the project, the same shall be provided by the bidder free of cost.

According to the report submitted by Dzongkhag ICT Officers, the following hospitals can be connected directly from BPC S/S (OPGW Termination Point):

SN	District Hospital	BPC S/S	Distance
1	Bumthang	Garvang	7.3 km
2	Gedu	Gedu	0.5 km
3	Phuentsholing	Malabese	1 km
4	Punakha	Lobesa	1.5 km
5	Paro	Olathang	0.4 km
6	Kanglung BHU I, Trashigang	Kanglung	1.5 km

Note: *The distance between the hospitals and BPC S/S is a rough estimate. Bidder shall be responsible to conduct detailed survey to determine the exact quantity required. In case, any additional quantity of the items required for the successful implementation of the project, the same shall be provided by the bidder free of cost.*

However, **only Gedu, Phuentsholing, Punakha, Paro and Kanglung (BHU)** Hospitals can be connected by laying new fiber from BPC S/S subject to confirmation on whether there are any ADSS cable strung along the BPC SS-Hospital Distribution line. **Bidders need to ascertain with BPC on this.** Subsequently BPC SS shall be connected to DrukREN PoP using ISP Approach Cable.

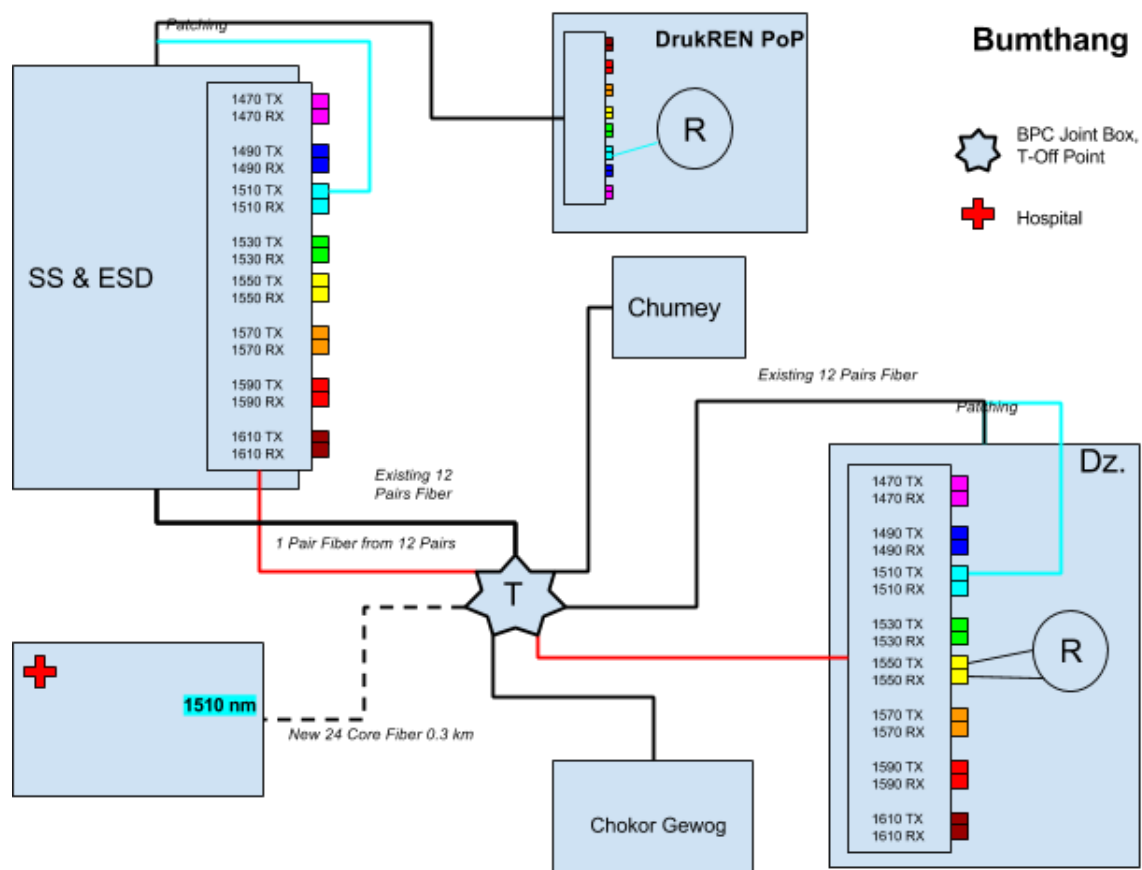
For the remaining 6 District Hospitals (*Bumthang, Punakha, Wangduephodrang, Mongar, Pemagatshel and Samdrup Jongkhar*) distribution poles connecting BPC SS and hospitals already carries ADSS fiber.

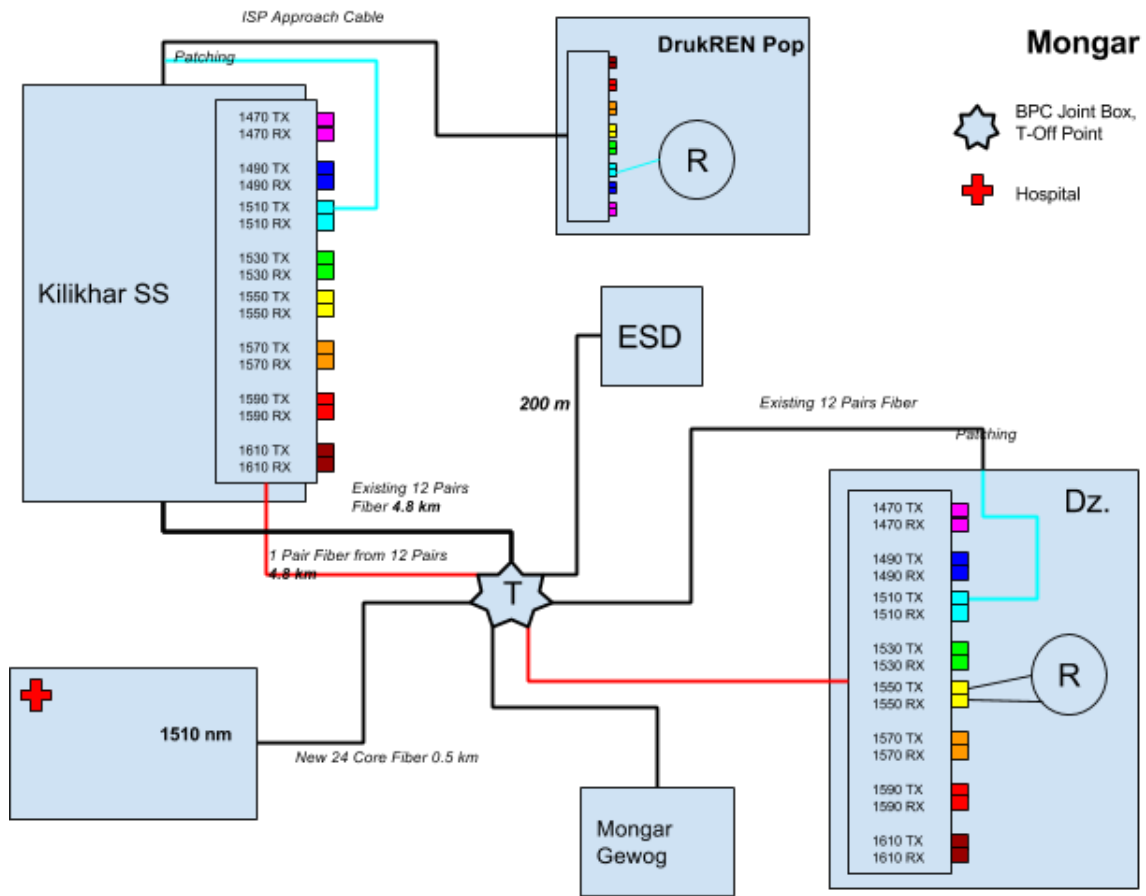
Therefore DITT shall use WDM technology to connect these hospitals. WDM technology would enable the department to use same allocated pair of fiber, that connected Dzongs, to connect these 6 hospitals. Hospitals would be using same pair of fiber to connect with BPC SS that connected the Dzong. District hospitals would then get connected to DrukREN PoP using ISP Approach Cable (BPC S/S-DrukREN PoP).

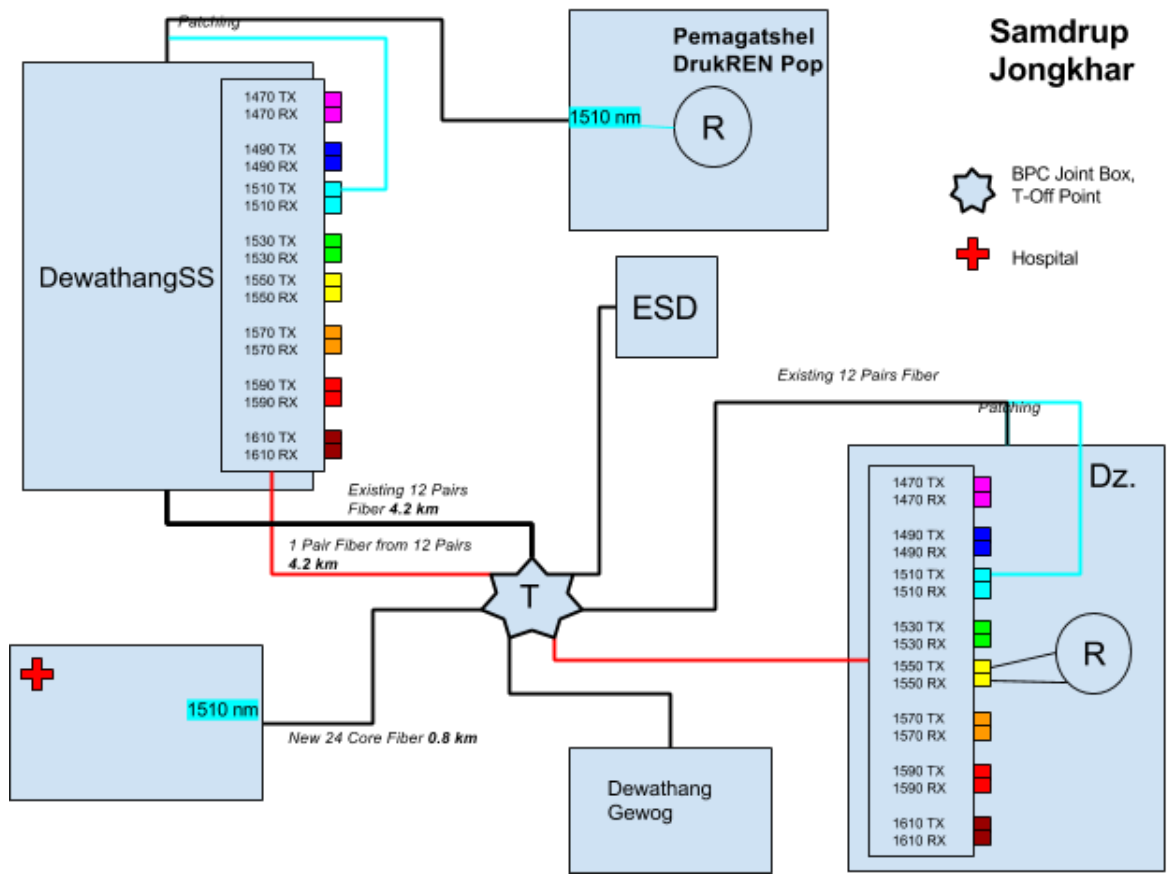
For this RFQ, contractor shall build last mile fiber connection from the 11 identified hospitals to the BPC Substation/T-Off Point/Dzong/BPC ESD Office.

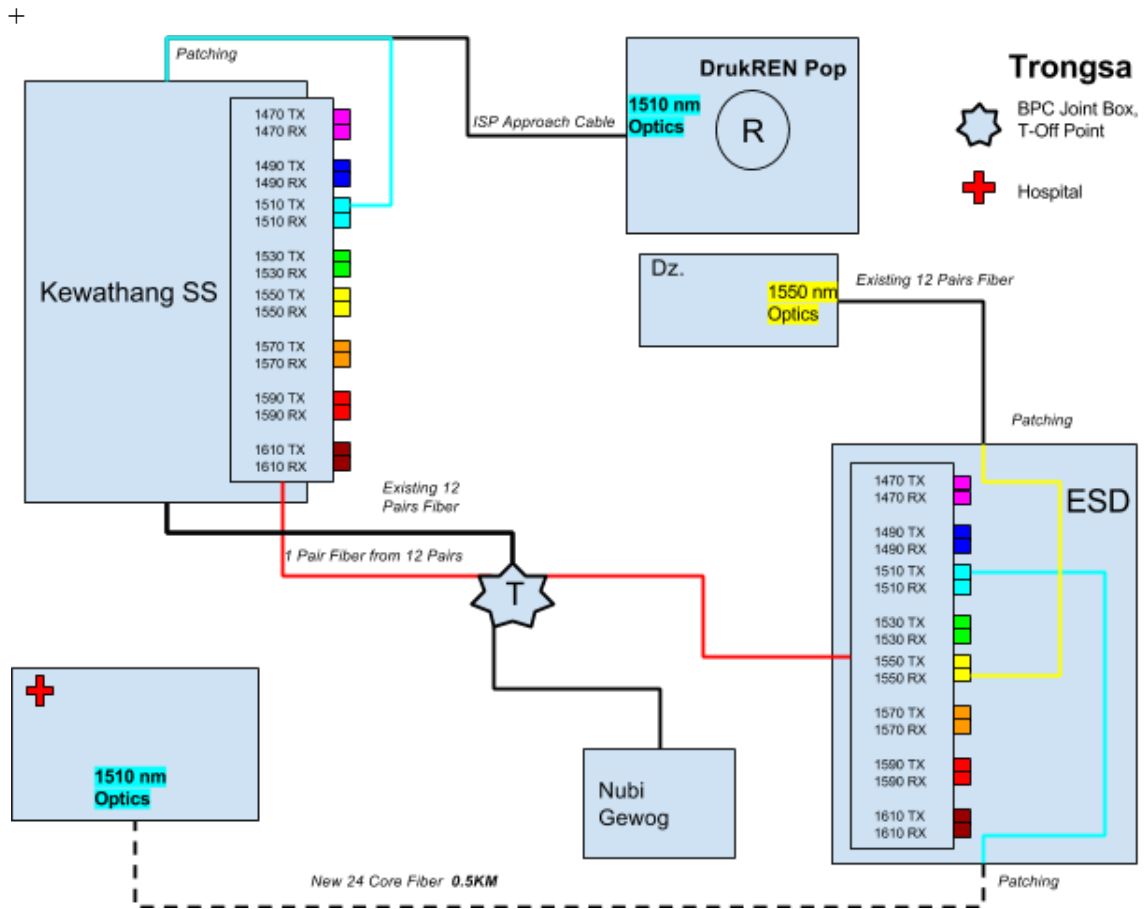
Tentative Design:

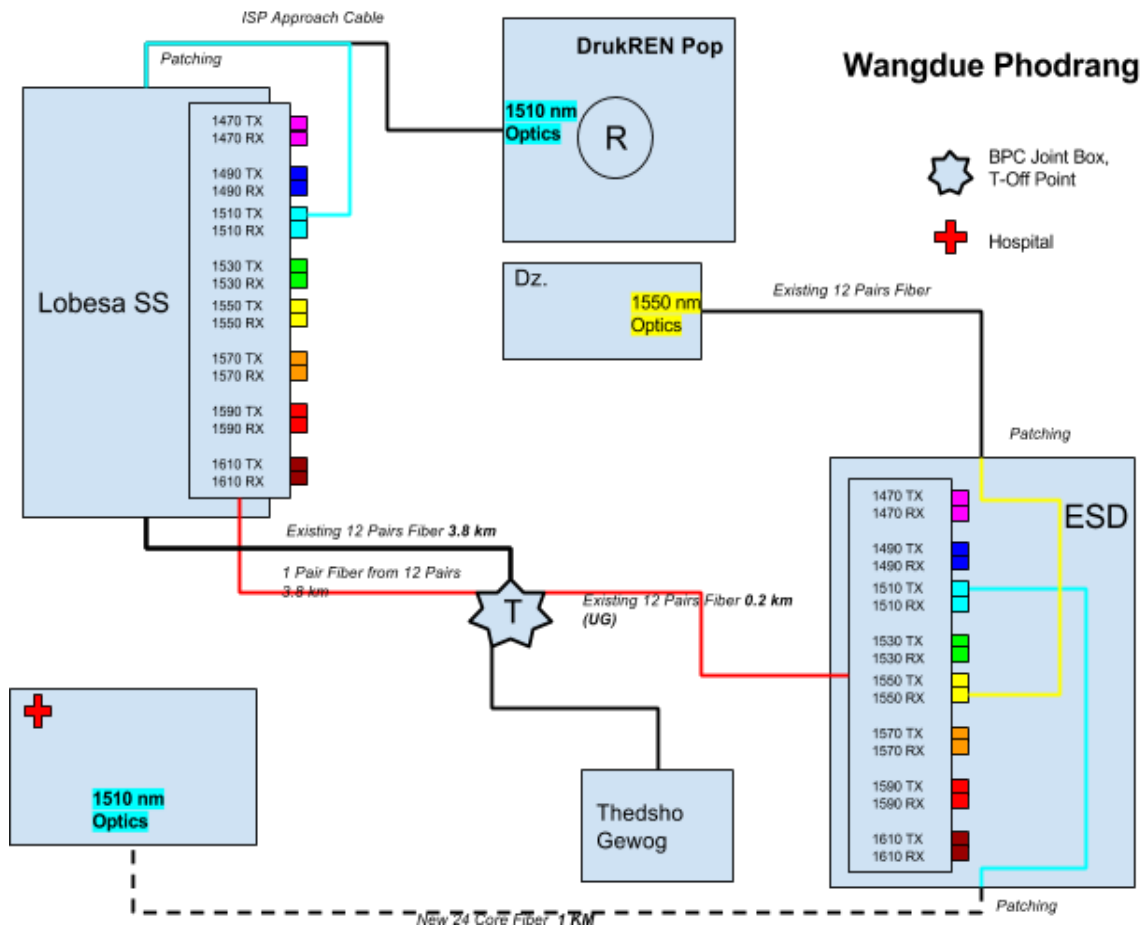
Proposed Designs for *Bumthang, Punakha, Wangduephodrang, Mongar, Pemagatshel and Samdrup Jongkhar* Dzongkhags are as follows:











Note: The distance between the hospitals and BPC ESD Office/T-off Point/Dzong is a rough estimate. Bidder shall be responsible to conduct detailed survey to determine the exact quantity required. In case, any additional quantity of the items required for the successful implementation of the project, the same shall be provided by the bidder free of cost.