

### **PROJECT TITLE:**

Prevention of Diabetes and other diseases related to its complications including Diabetes Mellitus(DM) and Retinopathy(DR) in rural areas of Narail District, Bangladesh through skill development training and upgrading Laboratory facilities of ORCD, a Local NGO.

#### **Project Background:**

Diabetes Mellitus (DM) is a leading cause of heart failure, stroke, visual impairment and blindness is significantly increasing, especially in the developing countries including Bangladesh. Within Bangladesh alone, it is estimated the prevalence of diabetes will increase to greater than 20 million by 2030 if the current upward trend continues. Diabetic retinopathy (DR) is a major complication of diabetes, and is one of the leading causes of vision loss worldwide. **Both DM and DR are preventable with timely diagnosis, management, referral and treatment to lowering these two debilitated chronic diseases.** The clinical presentation of DR is often more severe in low resourced settings because of the high proportion of undiagnosed diabetes and delay in retinal examination.

Given the higher prevalence of DM, the emphasis needs to be on early diagnosis of DM and timely referral of DR and other eye care perspectives. A major hurdle for the rural people is to travel to major cities due to financial hardship, time constraints and lack of awareness. Therefore, people living in rural areas do not have timely access to specialist eye care. There is very little infrastructure for basic health care in the rural area, let alone access to specialist services for diabetes and eye care.

#### **Profile of ORCD [Organisation for Rural Community Development]:**

**ORCD** is a registered NGO with the Government of Bangladesh established in 2012 through technical support from Centre for Eye research Australia, the University of Melbourne, Australia, Vision Eye Hospital, Dhaka and Narail Diabetic Hospital, Bangladesh. The Services aimed by ORCD are as below:

- i. Detection of diabetes, pre-diabetes, hypertension and eye care services required in the project area
- ii. Create awareness and provide basic education to prevent and manage diabetes and its complication.
- iii. Provide eye care services through the centre.
- iv. Establishment of telemedicine services to provide better and specialised eye care services including DR.

#### **Justification of the Project:**

**ROTARY CLUB OF DHAKA MID CITY, ID-30891, BANGLADESH, RID- 3281**  
**PROPOSED PROJECT FOR GLOBAL GRANT**

The project area consists of about 100 villages of 7 unions [Banshagram, Amada, Baira, Bhadrabilla, Auria, Kashipur and Purulia] in Narail District 200 kilometre away from Dhaka, the Capital of Bangladesh. The nearest medical facility is almost 3 hour journey from most of the villages to the district headquarter. Recently ORCD conducted a population based survey in Banshgram over a random sample of 3104 adults aged 30 years or above. The study has reported 13% were with diabetes and 6% with pre-diabetes (with elevated risk of developing diabetes), 35% were hypertensive and 40% had low vision related to diabetes, age related and other causes. Of them who were diagnosed with disease, above 75% people with Diabetes and 82% people with hypertension were never been diagnosed until the study was conducted by ORCD. These results are attributed to the lack of knowledge and awareness about the diabetes and its complications, lack of facilities for diagnosis and mainly to the hassle of traveling from the villages to the district town. The proportion of undiagnosed diabetes is higher in females, people with low socio-economic status and with low education level. Thus the project is designed to address these causes and to prevent the diseases related to diabetes and its complications of a section of 180,000 peoples in these 7 unions.

**PROJECT COMPONENTS & COST:**

The project has the following Components:

1. Supply of medical equipment to strengthen the Lab facility of ORCD to diagnosis and treat the patients.
2. Training of the Lab technicians and medical assistants of ORCD to improve their skill to render their service more effectively.
3. Support the project Technical operation for one year by sharing the cost of expertise medical services through qualified Physicians & technicians.

**TABLE – 1: SUPPLY OF EQUIPMENTS**

<b>Items</b>	<b>Unit</b>	<b>Cost US\$</b>
1. Retinal camera [CR-DGI Cannon], Retinal camera Canon CR-DGi (CR6) Non-Mydriatic NM Digital Retinal Fundus Camera.	1	12,350
2. HP LaserJet p2035 printer	1	350
3. Epson Perfection V700 Photo Flatbed Scanner	1	415
4. Photocopy machine, Toshiba e-studio 243 Desktop A3 Multifunction Photocopier	1	1,200
5. Laptop computer, Inspiron 15R (Touch) - \$1,198.99	1	1,200
6. Biosen Lactate & Glucose Analyser	1	2,000
7. L&W Optics Slit Lamp Model YZ 5F1	1	3,750
8. Auto refractor keratometer GRK-7	1	2,250
9. Distance visual chart	1	490
10. Multimedia projector, View Sonic PJD5134 SVGA DLP Projector, 3000 Lumens, 3D Blue-Ray w/HDMI, 120Hz	1	550
11. Blood centrifuges	1	600
12. Air pup Tonometer (Intra-ocular pressure measure for Glaucoma)	1	900
<b>TOTAL</b>	<b>US\$</b>	<b>26,055</b>

ROTARY CLUB OF DHAKA MID CITY, ID-30891, BANGLADESH, RID- 3281  
PROPOSED PROJECT FOR GLOBAL GRANT

**TABLE 2: SKILL DEVELOPMENT TRAINING**

<b>Training</b>	<b>Duration</b>	<b>Place</b>	<b>Training Cost</b>
Diabetes educator -4 persons	One month	Dhaka	1,600
Lab Technician -4 persons	One month	Dhaka	1,600
Ophthalmic assistant - 4 persons	3 months	Dhaka	2,400
Community volunteer for peer education	One day, 4 per each village of about 100 villages=200@\$10	Dariapur	4,000
Retinal Grader 2 persons	3 months	Dhaka	1,500
*Set up telemedicine network by e - health specialist, Dr Alauddin Bhuiyan	15 days stay in Bangladesh travelling from Australia (accommodation, airfare, lump sum honorarium)	ORCD centre AT NARAIL	3,500
<b>Total</b>			<b>US\$ 14,600</b>

\*Dr Bhuiyan is an e-Health specialist will set up the telemedicine network travelling from Australia.

**TABLE -3: OPERATION COST**

<b>Items</b>	<b>Job description</b>	<b>COST/YEAR</b>	<b>Cost under the project</b>
Project manager -one 100%	Overall management of the project - Supervise accounts and all activities including monitoring field activities by frequent site visits.	12@160=1,920	3,840

**PROJECT COST SUMMARY**

<b>SL NO</b>	<b>COST COMPONENT</b>	<b>COST IN US\$</b>
1	SUPPLY OF EQUIPMENTS	26,055
2	SKILL DEVELOPMENT TRAINING	10,200
3	PROJECT MANAGEMENT	3,840

<b>TOTAL</b>	<b>44,495</b>
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**OUTCOME OF THE PROJECT:**

**Broad outcome of the project is focused to prevent diseases related to diabetes and its complications through achieving the following goals.**

**A. Screening and detection of Patients and Treatment:** Given the prevalence of diabetes of above 10%, we will find at least 4,000 participants with diabetes from the 40,000 eligible adults.

- Given the prevalence of hypertension of approximately 30%, we will find 12,000 participants with hypertension.
- At least 15% people with low vision will provide at least 6000 people with low vision who will require reading glass or further eye examination
- Given the prevalence of DR of approximately 30% in people with diabetes, we will find 1200 participants with DR.
- Given the prevalence of severe DR of approximately 2-3%, we will find 80-120 participants with severe DR who will require lesser treatment.

**B. Create Awareness at community level:**

- (1) Information booklet on diabetes and its complication including common eye diseases and diabetic retinopathy will be written in Bengali using available online resources, such as UK diabetes as well as resources available at the Centre for Eye Research Australia, the University of Melbourne.
- (2) Diabetes educator from Narail Diabetes Hospital will be invited to provide education.
- (3) Field coordinator trained in DM management, common eye diseases and hypertension will organise focus group discussion and coordinate the program
- (4) Community volunteers (3-4 persons per village) will be trained up by diabetes educator and ophthalmologist for peer education at village level.

**C. Referral Pathway for Better treatment:** To strengthen the referral pathways within existing health care systems, a telemedicine platform will be established with ORCD centre and major hospitals in Bangladesh and overseas to carry out regular follow-up with individuals identified to have DR. An example of a successful model of referral pathway in Cambodia is Caritas Eye Hospital which is supported by surrounding local centres and an NGO.

- Identify people with cataract and organise treatments as required
- Send retinal photographs (identified as abnormal by the mid-level trained ophthalmic assistants) using the internet and/or using USB (since the internet is not fast enough to send through internet yet) for assessment by the specialist doctors.
- Carry out regular follow up with individuals identified to have DR

ROTARY CLUB OF DHAKA MID CITY, ID-30891, BANGLADESH, RID- 3281  
PROPOSED PROJECT FOR GLOBAL GRANT

- People with no DR to mild retinopathy – annual follow up;
  - Moderate and non- proliferative DR (NPDR) – 6 monthly follow up;
  - Severe NPDR, clinically significant macular oedema (CSME), proliferative DR (PDR) referral to retinal specialist and three monthly follow up and to organise laser treatment when it is required.

**D. Monitoring/ Evaluation/Measuring Change**

Since there is no available data on prevalence and risk factors of DR in the rural area in Bangladesh, we will estimate the prevalence and its risk factors from 4000 participants identified with diabetes will be one of the outcomes of the project. The prevalence of severe DR will give a projection of how many lesser surgery will require in a particular rural area or at the national level given the fact of homogeneity of characteristics, economy and education across the country.

We will keep record of the number of patients with DM and DR to be treated. We have collected data on knowledge, attitude and practice (KAP) of diabetes and common eye disease from Banshgram Union. We will able to collect data on the same variables to report the changes due to various interventions. The intervention study is already in progress.

Since this is the first time we are conducting this type of project in a rural area in Bangladesh, every single outcomes, barriers will be recorded as part of the evaluation process.

**E. Establishment of Telemedicine Service:**

Telemedicine is not well known and used technology in Bangladesh, but could be extremely useful as a health service in remote areas. A similar strategy has been successfully implemented in India and rural areas in the developed world, including Australia.

The successful establishment of a telemedicine network will provide a service model between local centres and major hospitals. This will be a ground-breaking achievement to health services in Bangladesh and thus in the low resource countries

**F. Rotary Image:** As par MOA the ORCD will display a donor board and Rotary Logo at the centre and they will charge the patients less compare to other available medical centres at the district town. They will charge only the cost not any profit out of the service. This will create a brand image of Rotary in the region.

**SUSTAINABILITY:** The project is well sustainable one. It is an established centre and with their existing logistics they providing some services to the area. An estimate below show that the service charges collected by the ORCD Centre based on the services they

ROTARY CLUB OF DHAKA MID CITY, ID-30891, BANGLADESH, RID- 3281  
PROPOSED PROJECT FOR GLOBAL GRANT

provide is higher than the cost of operation they would incur. Successful completion of the project will lead higher income. So this can be considered a sustainable project.

TABLE – 4: Income for sustainability comparison.

Services	Numbers/unit rate	Total amount in US\$	
		Year 1	Year 2
1. 50% of 40000 i.e., 20000 with high risk of DM will be screened by collecting fasting blood glucose	20000@\$0.50 /3 years=10000	3500	4000
2. Diabetes identified 4000	4000@\$1.5/ year =18000	6000	7000
3. Other eye care services	~12000@\$0.50/year=18000	6000	8000
4. Collecting retinal photos [ $\geq$ 40 years of age]	~2500@\$2/year=15000	5000	6000
5. Taking retinal camera to other diabetes hospital, collect and grading photo for them	~300 per year@\$3=2700	900	900
6. Lesser Surgery	~30 per year@\$5/year=450	150	150
7. Micro van (emergency patient service)	100@\$10 per year=3000	1000	1000
<b>Total Service charges</b>		<b>22,550</b>	<b>27,050</b>
<b>Total Operation Cost of the Project</b>		<b>20,820</b>	<b>22,500</b>
<b>Surplus Earnings</b>		<b>1,730</b>	<b>4,550</b>

PROJECT TENURE: 24 MONTHS.

FINANCING PLAN:

SL NO	NAME OF CLUBS/FINANCING ORGANISATION	PROPOSED AMOUNT US\$
1	ROTARY CLUB OF DHAKA MID CITY – HOST CLUB	2,000
2	INTERNATIONAL PARTNER CLUB	27,995
3	INTERNATIONAL PARTNER CLUB	
4	ROTARY INTERNATIONAL	14,500
	TOTAL	<b>US \$ 44,495.00</b> <b>US\$FORTY FOUR THOUSAND</b> <b>FOUR HUNDRED NINETY FIVE</b> <b>ONLY</b>

HOST CLUB: ROTARY CLUB OF DHAKA MID CITY- CLUB ID 30891

HOST CLUB CONTACT PERSON: Dr. ANWAR HASSAN NOOR, ID 2403559

INTERNATIONAL PARTNER CLUB:

ROTARY CLUB OF DHAKA MID CITY, ID-30891, BANGLADESH, RID- 3281  
PROPOSED PROJECT FOR GLOBAL GRANT

INTERNATIONAL CLUB CONTACT PERSON: