American Nepal Medical Foundation
Project Category C: Infrastructure - Healthcare Facilities
Tilganga Community Eye Center, Liwang, Rolpa

I. Proposal Summary

The Tilganga Institute of Ophthalmology (TIO) is requesting funds to construct a six-room building for Community Eye Center (CEC) in the village of Liwang in Rolpa District. This center has been providing eye care services to over 8,000 patients per year. The service catchment area of the centre is over 200,000 people spread throughout 50 different villages and a municipality (Table 1) in the Rolpa district. For this project, TIO is requesting US$ 30,000 to cover the costs of prefabricated building materials; transportation of these materials; and labor for the construction of this eye care facility.

II. Organization Description and History

History, Accomplishments, and Relevant Experience

Dr. Sanduk Ruit, a local Nepali ophthalmologist from a rural mountain village in Taplejung District, established the Tilganga Institute of Ophthalmology (TIO) in Kathmandu in 1994 with the goal of curing preventable blindness in Nepal. It was founded as the implementing body of the Nepal Eye Program, which is a community-based, non-profit, non-governmental organization dedicated to serving the poorest communities throughout Nepal. Since its inception, TIO has taken a holistic approach to eye care by serving as a high quality center for treatment, research, and training of eye care personnel.

Over the past 20 years, TIO has proven itself as one of the top eye care institutions in Asia and is one of Nepal's greatest success stories. The clinical arm at TIO, which is known as the Surgi-centre, is a state-of-the-art facility that provides an array of high quality outpatient services to the general public. A key aspect of the Surgi-centre is that it generates 100% of its operating costs through a sliding-scale payment scheme that utilizes tiered pricing and cost sharing to allow poorer patients to receive indirect assistance from those who can afford to pay for treatment. This ensures that all patients receive the same high quality care regardless of their socioeconomic status. In the Outpatient Department of the Surgi-centre, more than 700 patients per day receive general ophthalmology services. A 24-hour Emergency Service Department ensures those suffering from urgent eye injuries or infections can receive appropriate treatment in a timely manner. The Surgi-centre also offers several varieties of cataract and corneal surgical services to treat these two leading causes of preventable blindness in Nepal. At TIO, patients have access to elective cutting-edge refractive surgeries like LASIK, PRK, and Keyhole surgery. Additionally, the Surgi-centre offers a handful of specialty clinics such as the vitreo-retinal clinic, pediatric ophthalmology clinic, glaucoma eye clinic, oculoplastic and lacrimal clinic, uveitis clinic, contact lens clinic, and the soon-to-be established neuro-ophthalmology clinic. Since its opening in 1994, TIO has performed over 220,000 eye surgeries and screened nearly 3.5 million patients.

TIO has a world-renowned Academic and Training Department dedicated to the ongoing development of all levels of eye care personnel. It runs a fully accredited three-year MD Residency Program in ophthalmology that is affiliated with the National Academy of Medical Sciences, Nepal. Each year about five residents are accepted into this program, and to date, TIO has produced 28 certified ophthalmologists. TIO is also dedicated to continuing education for ophthalmologists and other allied health professionals. It offers 12 to 18 month fellowship programs in six different specialties to post-residency ophthalmologists (cornea and keratoplasty, glaucoma, retina, pediatric ophthalmology, orbit and oculoplasty, and uveitis), as well as short-term training courses for other eye care personnel that focus on surgical theater assisting, ocular regional anesthesia, refraction, ocular investigations and ophthalmic photography. In addition to these training programs, TIO coordinated with Dhulikhel Medical Institute to train Ophthalmic Assistant (OA), who – upon completion of this three-year program – earns a Certificate in Health Science in Ophthalmology. Effective from July 2014, TIO has been coordinating with the Council for Technical Education and Vocational Training (CTEVT) to continue the training program of Ophthalmic Assistant (OA). These newly trained, mid-level eye care personnel are then eligible for registration as Grade II health professionals with the Nepal Health Professional Council, and can begin working in eye hospitals and community eye centers throughout Nepal. To date, over 92 OAs have completed this program and 40 are currently in training. Lastly, TIO offers extensive exposure training for both national and international students. It runs a medical student elective program that draws students from Australia, Europe and the United States to participate in its surgical center, community eye clinics, and surgical eye camps in remote regions of Nepal. In the last two decades, TIO has trained over 7,500 eye care personnel.

As part of its goal to bring sustainable, high quality eye care to Nepal, TIO partnered with the Fred Hollows Foundation to establish the Fred Hollows Intraocular Lens Laboratory (FHILL), South Asia's first intraocular lens (IOL) manufacturing facility. This lens laboratory is certified by SGS in the United Kingdom, which is recognized as a global leader in inspection, verification, testing and certification. The FHILL is a cutting-edge laboratory that is internationally renowned for producing high quality IOLs at affordable prices. It has reduced the cost of manufacturing an IOL from US$100 to approximately US$4. These IOLs are used as sight-restoring implants for people suffering from cataract blindness and visual impairments across the globe. They are currently distributed to 15 countries, but have been exported to over 70 countries worldwide. The FHILL produces over 400,000 IOLs annually, and since it opened its doors in 1995, it has produced more than four million. The FHILL is the approved supplier of IOLs to VISION 2020 Projects and Partners worldwide.

In order to address corneal blindness, TIO – with support from the International Federation of Eye and Tissue Banks – established the Nepal Eye Bank (NEB), the only facility that harvests and collects corneas for transplantation in Nepal. The NEB is tasked with excising corneas from deceased donors (after consent is given by the family of the deceased), storing corneas for transplantation, managing the distribution of corneas to other eye hospitals throughout Nepal, maintaining the cornea transplant waiting list, and conducting public awareness campaigns about cornea donation. In 2014, the NEB harvested 709 corneas for transplantation, but the demand for corneas usually outweighs

supply. The NEB has set an annual goal of collecting 1,000 corneas to address this issue. In 2013, the NEB was the recipient of an Award for Excellence in Eye Banking by Sightlife, the only non-profit international health organization that aims to eliminate the global burden of corneal blindness. To date, the NEB has harvested approximately 6,600 corneas for transplantation.

In 2002, TIO established a Research Department with the goal of providing a sustainable and independent ophthalmic research institute geared towards basic, epidemiological, survey, and operational research. The Research Department focuses on advancing knowledge in eye care practices, as well as improving patient management techniques, to ensure TIO provides high-quality and affordable care to the underprivileged. All research activities are monitored by an Institutional Review Committee (IRC), which is accredited by the National Health Research Council, Nepal's government authority in health research. The IRC is comprised of five members and chaired by the Deputy Medical Director of the TIO, Dr. Reeta Gurung. Since its inception, the Research Department has conducted 126 research projects and published 103 academic papers in national and international MEDLINE indexed journals.

In order to reach those who are suffering from vision loss and eye disease in remote areas of Nepal, TIO conducts between 25 and 30 Outreach Microsurgery Eye Clinics (OMECs) each year focused on eye examinations and Small Incision Cataract Surgery (SICS). Nepal's blind populations are at high risk of living in impoverished conditions, and these OMECs are aimed to help the rural blind and visually impaired people who have little or no access to eye care. Many of the villages where the OMECs are conducted are so remote that TIO staff must carry their surgical equipment on their backs as they trek to the villages. After completion of a cataract surgery during an OMEC, there is a 30-day follow-up scheduled in the same village, and patients who return are examined and treated as needed. Those patients requiring special eye surgeries or further investigation are referred to the nearest Community Eye Center. Medical teams from TIO also travel regularly to neighboring regions, such as Tibet, Bhutan, North Korea, Bangladesh, Myanmar, India, and Indonesia, to conduct OMECs. Since 1994, surgeons from TIO have conducted over 370 OMECs, examining approximately 468,000 patients and performing over 95,500 cataract surgeries.

Finally, and most relevant to this grant, TIO has developed the concept of the Community Eye Centre (CEC) in order to provide access to comprehensive, high quality, and affordable eye care for all Nepali communities. To date, TIO has established 13 CECs throughout 13 districts of Nepal (Bhaktapur, Dhading, Dolakha, Manang, Mustang, Nuwakot, Okhaldhunga, Ramechhap, Rasuwa, Rolpa, Sindhupalchok, Solukhumbu, and Swyambhu). Each CEC is open six days a week and staffed by a senior ophthalmic assistant, an eye health worker, and a staff helper. The overall purpose of the CECs is to provide preventative, promotive, curative, and rehabilitative eye care services to the rural communities they serve. These facilities also have the capacity to perform minor eye surgeries, such as entropion, chalazion, and sty incision and drainage. The Fred Hollows Foundation, the Himalayan Cataract Project, and the Vision Tibet Foundation are major supporting partners for these CECs. Additionally, TIO has established the Community Eye Hospital (CEH) in Heatauda of Makawanpur District. This facility plays an active

role in OMECs in its area, and provides eye care, major surgeries, and trainings for community health care workers.

Structure and Staff Information

TIO is led by its founder and Medical Director, Dr. Sanduk Ruit; Chief Executive Officer, Dr. Reeta Gurung; and Academic Chief, Professor Govinda Paudyal. There is also a board of directors comprised of the following seven members: Suhridh Ghimire, Chairman; Rabindra Shrestha, Vice Chairman; Dr. Sanduk Ruit, Executive Director; Diwakar Golchha, Treasurer; and Directors Ang Tsering Sherpa, Hari Bansha Acharya, and Sambhu Tamang. Each department is led by a professional or specialist that is tasked with managing the day-to-day workflow of that department. In total, TIO employs over 350 staff members working in 15 different locations around Nepal.

Suman Thapa MD, PhD, will oversee the construction of the CEC, along with members of the Outreach Department at TIO in Kathmandu.

Why Support TIO?

We believe TIO is an ideal grantee for the ANMF because it is committed to providing long-term, sustainable and affordable eye care to the Nepalese people. It has an unrivaled record of success in constructing medical infrastructure (in the form of CEHs and CECs), conducting surgical outreach programs, advancing research, and furthering the education and training of all levels of eye care professionals. Over the past 20 years, the TIO team has exemplified how the Nepalese people can take the lead in solving one of Nepal's most devastating medical conditions: preventable blindness. In total, TIO has provided ophthalmological serves to over 3.9 million outpatients, performed over 265,400 eye surgeries, trained 7,500 eye care workers, produced 4 million IOLs, harvested over 6,600 corneas for transplantation, and published 103 research papers. We are asking for your assistance in the construction of a building for CEC in Liwang so we can bring our innovation and skills to the rural population of Rolpa District.

III. Statement of Need

In February of 1999, the World Health Organization – in conjunction with the International Agency for the Prevention of Blindness – launched VISION 2020, an initiative that aims to eliminate the global burden of preventable blindness by the year 2020. The three core strategies outlined for achieving these goals are cost-effective disease control, human resource development, and the advancement of infrastructure and technology. That same year, Nepal became one of the first South Asian countries to launch VISION 2020 as part of its national plan for the prevention of blindness, and TIO played an instrumental role in working with the Nepales government to develop its action plan for the following two decades.

Today, Nepal's blind population is estimated to be around 170,000 citizens. Roughly 65 percent of this population is blind due to a treatable condition called cataract. A cataract is a cloudy occlusion in the normally clear lens of the eye that blocks light from reaching the retina, leading to blindness. Each year, an additional 30,000 people become blind as a

result of cataracts, trachoma, glaucoma, corneal problems, and uncorrected refractive error (the unmet need for glasses), along with other childhood diseases and infections. In Nepal, there are only about 170 ophthalmologists for an estimated 28.8 million people, or one eye doctor for every 170,000 citizens. Half of these physicians are located in urban areas, while over 90 percent of Nepal's blind population lives in remote regions, making access to health or eye care services extremely difficult. Additionally, these blind populations are usually devastatingly poor because their blindness leaves them unable to work or care for themselves, leading to an inescapable life of poverty.

In line with the VISION 2020 initiative, along with its commitment to reaching the most isolated Nepalese communities, TIO has established 13 Community Eye Centers (CECs) to reach underserved populations in the following districts: Bhaktapur, Dhading, Dolakha, Manang, Mustang, Nuwakot, Okhaldhunga, Ramechhap, Rasuwa, Rolpa, Sindhupalchok, Solu, and Swyambhu. These CECs are essential in providing long-term, low-cost, comprehensive eye care services to the poorest and most hard-to-reach communities in Nepal. In order to address the unmet eye needs in Rolpa District, TIO is planning to construct a building in Liwang, Rolpa. TIO has been providing eye care services in Rolpa District by means of surgical eye camps since 2006. In 2008, it opened a Community Eye Center in the Municipality of Liwang to address the primary eye care needs of the area at shared rooms of Red Cross Building, which is a bit congested. Because of limited rooms in existing building, Rolpa CEC and TIO have been looking for the financial source for building construction and land. Fortunately, TIO received an area of over 400 square meter land for Rolpa CEC in kind by local person (former Red Cross president). However, this area is less affected but several houses in rural villages of district were destroyed in the earthquake of April 25, 2015.

TIO has identified the town of Liwang to build this building because of its central location to 51 rural villages with a population of 224,000 Nepalese citizens (Table 1). Currently, people from the Rolpa catchment area who are seeking eye care have a very hard time accessing the proper facilities.

Unfortunately, the April 25th earthquake and subsequent aftershocks have only worsened the situation for the people living in Rolpa and several hilly and mountainous such as Sindhupalchok, Dolakha, Nuwakot, Dhading, Kavreplanchok, and Ramechhap and so on. As of June 3, 2015, the Government of Nepal reported a total of 505,745 houses destroyed and 279,330 damaged. The earthquake has affected millions of people, with 8,702 died (4,801 female; 3,899 male and 2 bodies unidentified) and over 20,000 injured. 14 out of 75 districts of Nepal have been severely affected by the earthquake.

The construction of new CEC in the Liwang area of Rolpa would greatly reduce the impact of the current and future burden of blindness, as well as other visual impairments by increasing the inflow of patients in at least by 25% in the district. Additionally, this will push upward of revenue generation which will play a significant role in achieving its self-sustainability. This CEC has staffed with a certified senior ophthalmic assistant (SOA), ophthalmic assistant (OA) and a staff helper. This small team is the primary eye care provider for the district populations. These staff members provide the following services: checking visual acuity, fitting glasses, screening for eye infections, diagnosing

and treating minor eye diseases, and referring patients to physicians when appropriate. Also, these staffers play an integral role in outreach and educational programs that has been implemented in local community centers and schools. Finally, the OA also helps with the pre-screening of patients, the operations of surgical eye camps, and the recruiting of local community members for training as assistants and technicians for the CEC.

IV. Project Description

The funds we are requesting will be used in the construction of a six-room CEC in Liwang using prefabricated, earthquake-resistant materials. Once initiated, we expect the project to be completed within Four to Six months.

The goal of this project is to address and prevent blindness in the Rolpa catchment area by investing in eye care infrastructure and human resources. This CEC will serve approximately over 200,000 individuals (Table 1 & Annex 1) by providing a reliable facility that can be used to deliver comprehensive eye care at affordable costs. We plan to achieve this goal by building an earthquake-resistant facility and staffing it with a certified ophthalmic assistant, an eye health worker, and a staff helper, who will have the capacity to carry out day-to-day eye care services as listed in the statement of need above. Additionally, TIO will send a team of ophthalmologists to conduct cataract surgical services at the CEC at least once a year. Table 2 shows the projected results of the Second five years of operations from the CEC in Rolpa, which are based on the size of its catchment area and achievements of its previous performance. Once built, the activities at the CEC will be monitored by two entities: the TIO outreach department, and a local CEC management committee. The outreach department will be in charge of program planning and implementation, monitoring and evaluation of clinical and financial outcomes, and report development for the facility. The local CEC management committee will be assembled to monitor the day-to-day working environment of the facility, ensure that staff members are providing adequate services to the public, and help to promote and advocate for the CEC within the community. In accordance with TIO guidelines, the local staff in Rolpa will be tasked with generating monthly and yearly reports on the clinical and financial performance of the CEC. These reports will be submitted to and reviewed by the outreach department at TIO, and their contents will be shared with local stakeholders and donors at the annual advocacy meeting.

As of now, our biggest challenge in constructing a CEC in Rolpa is funding. The local social worker (former Chairman of District Red Cross Chapter, Rolpa) provided an area of over 400 square meter land for Rolpa CEC in kind for us to build this facility, so once we secure a funding source we will be able to initiate the building process. Furthermore, as Rolpa is in a hilly region – with unpredictable seismic activity, an impending monsoon season, and possible landslides – we may also face challenges with road access and the transport of building materials. However, we are committed to overcome any and all challenges we might encounter in order to provide superior eye care to the people of Rolpa.

If you have any questions or concerns regarding this proposal please don't hesitate to contact Suman Thapa MD, PhD by email at sumansthapa@yahoo.com or phone at +9813665961.

Table 1. Population Catchment of Project Area

VDC/ Municipality	Household	Population		
		Total	Male	Female
51	**43,757**	**224,506**	**103,100**	**121,406**

Source: National Population and Housing Census 2011, CBS, Kathmandu, Nepal

Table 2: Summary of Projected Outcomes of Rolpa CEC in 2016 to 2020 Years

Activities	2016	2017	2018	2019	2020	Total
In Centre patient screenings	7,200	7,920	8,712	9,583	10,542	43,957
Outreach patients screenings	4,400	4,400	4,400	4,400	4,400	22,000
Total Patient Treated	11,600	12,320	13,112	13,983	14,942	65,957
Cataract surgery	250	250	250	250	250	1,250
Minor surgery	100	100	100	100	100	500
Total Surgery Performed	350	350	350	350	350	1,750

Source: *five Year Plan of TIO Outreach Departments- 2015, Tilganga Kathmandu*

V. Project/Budget Timeline

The goal of this project is to construct an earthquake-resistant CEC building in Rolpa. Once the requested funds of US$ 30,000 (NPR 3,000,000) have been approved by ANMF, TIO will initiate the necessary paperwork to start construction of the CEC. We suspect the logistical portion of this process, which includes filing the appropriate paperwork and obtaining the prefabricated building materials with the local Rolpa government and TIO management board will take approximately two to three months. Once this is complete, we will finalize payment with the manufacturer of the prefabricated building that will provide the following materials and services: all materials for a six-room building; transport of materials to Rolpa; construction of the CEC; and installation of electrical, plumbing, and flooring. This process should take another two to three months. In total, we estimate this project to take four to six months.

VI. Budget

Table 3 shows the total project cost for the five years of operation of the Rolpa CEC. The requested grant of US$ 30,000 (NPR 3,000,000) will cover transport of materials and

installation of the six-room structure. The local social worker (former Chairman of District Red Cross Chapter, Rolpa) provided an area of over 400 square meter land for Rolpa CEC in kind for this project. As per previous years, TIO will manage the all project expenditures for the Rolpa CEC. TIO request the financial support especially for outreach activities and capacity building programs. The CEC will begin to fund a portion of its operating costs starting in 2016 year and we are projecting self-sustainability by end of 2018 year.

TIO would like the ANMF to consider starting a long-term partnership for future human resource and health infrastructure development in Nepal.

Table 3 Summary of 5 Year Project of Rolpa CEC 2016- 2020

Description	2016	2017	2018	2019	2020	Total of 5 years
Operation Cost	2,586,062	2,866,262	3,330,288	3,667,077	4,148,390	16,598,080
Outreach Program	1,072,200	1,090,500	976,120	976,120	976,120	5,091,060
Capacity Building: Training	1,015,000	1,015,000	1,015,000	-	-	3,045,000
Capital cost	3,000,000	530,000	-	-	-	3,530,000
Overhead cost	767,326	550,176	532,141	464,320	512,451	2,826,414
Total in NRs	8,440,588	6,051,938	5,853,549	5,107,517	5,636,960	31,090,554
Total in US$	86,128	61,754	59,730	52,118	57,520	317,251

Used Exchange rate 98 NPR = 1 USD (at planning month)

Annexes

Table 1. Population Catchment of CEC, Rolpa

S.N	VDC/ Municipality	House hold	Population		
			Total	Male	Female
	Total	**43,757**	**224,506**	**103,100**	**121,406**
1	Aresh	716	4,066	1,833	2,233
2	Bhabang	799	4,065	1,884	2,181
3	Mirul	494	2,513	1,108	1,405
4	Budagaun	1,250	6,314	2,971	3,343
5	Dhawang	894	4,901	2,283	2,618
6	Dubring	931	4,537	2,076	2,461
7	Dubidanda	883	4,129	1,781	2,348
8	Eriwang	1,003	5,279	2,427	2,852
9	Fagaam	562	3,025	1,341	1,684
10	Gaam	787	4,006	1,843	2,163
11	Gairigaun	938	4,561	2,083	2,478
12	Gajul	1,044	5,257	2,366	2,891
13	Gharti Gaun	921	4,633	2,172	2,461
14	GhodaGaun	685	3,205	1,379	1,826
15	Gumchal	650	3,815	1,722	2,093
16	Harjang	424	2,396	1,113	1,283
17	Jailwang	510	2,896	1,381	1,515
18	Jaimakasala	580	3,020	1,418	1,602
19	Jangkot	599	2,853	1,280	1,573
20	Jaulipokhari	933	4,470	1,868	2,602
21	Jedwang	737	3,802	1,641	2,161
22	Jhenam	1,062	5,516	2,548	2,968
23	Jinabang	979	5,156	2,296	2,860
24	Jungar	1,019	5,169	2,404	2,765
25	Kareti	453	2,365	1,116	1,249
26	Khumel	648	3,060	1,325	1,735
27	Khungri	910	4,168	1,757	2,411
28	Korchabang	747	3,299	1,398	1,901
29	Kotgaun	895	4,155	1,847	2,308
30	Kureli	587	2,989	1,310	1,679
31	Liwang	2,607	10,417	4,845	5,572
32	Masina	991	5,028	2,247	2,781
33	Miijhing	1,561	7,508	3,516	3,992
34	Nuwagaun	880	4,548	2,155	2,393
35	Pachhabang	823	4,333	1,883	2,450
36	Pakhapani	1,012	6,167	2,902	3,265
37	Pang	867	4,567	2,027	2,540
38	Rangkot	653	3,527	1,587	1,940

39	Rangsi	952	4,650	2,072	2,578
40	Rank	1,013	6,151	2,861	3,290
41	Sakhi	615	2,890	1,343	1,547
42	Seram	374	1,972	921	1,051
43	Sirpa	1,393	7,038	3,081	3,957
44	Siuri	319	1,720	796	924
45	Talabang	1,048	5,180	2,350	2,830
46	Tewang	625	3,404	1,598	1,806
47	Thabang	937	4,398	2,042	2,356
48	uwa	741	3,970	1,885	2,085
49	Badachaur	1,068	5,815	2,561	3,254
50	Hwama	784	3,865	1,665	2,200
51	Wot	832	4,409	1,993	2,416
50	Institutional	22	3,329	2,799	530

Source: National Population and Housing Census 2011, CBS, Kathmandu, Nepal