

## Nepal Netra Jyoti Sangh (NNJS) Terms of Reference

### Cross-sectional study on prevalence and causes of hearing impairments in Karnali Province, Nepal

#### 1 NNJS Nepal

Established in 1978, NNJS as a non- for- profit organization, has been working in Nepal for more than 4 decades for promoting promotive, preventive, curative and rehabilitative eye care services. Currently, NNJS is providing primary secondary, tertiary and centre of excellence eye care services through 27 major eye hospitals, more than 150 primary eye care centres and few vertical programs throughout the country to combat preventable causes of avoidable blindness and vision impairment.

The main vision is “A Nepal where no one is blind due to avoidable causes, and everyone can access comprehensive and equitable Eye care systems in the country.”

The main mission is “To develop and provide high quality, sustainable, comprehensive and affordable eye care service network in the country.”

NNJS Nepal is implementing an Integrated Eye and Ear Health Program in 10 districts of Karnali Province of Nepal since January 2021 financially supported by CBM. The major goal of the program is “Improved Quality of Life of People of Karnali by Reducing Avoidable Causes of Vision and Hearing Impairment and Disability Inclusion.”

#### 2 Background

Hearing impairment is fourth common cause of disability in the world. It is increased by 27% in past thirty years (from 15.9% to 20.3%)<sup>1</sup>. Globally more than 1.5 billion people experience some decline in their hearing capacity during their life course, of whom at least 430 million will require care. WHO has projected that by 2050, nearly 2.5 billion people will have hearing loss of mild or higher severity in the better hearing ear<sup>2</sup>. Almost one third of people between 65-74 years old and half of older than this are suffering from hearing loss<sup>3</sup>.

- 
1. Haile, L. M. *et al.* Hearing loss prevalence and years lived with disability, 1990-2019: findings from the Global Burden of Disease Study 2019. *Lancet (London, England)* **397**, 996–1009 (2021).
  2. World report on hearing. Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO
  3. NIH. Age-Related Hearing Loss (Presbycusis) — Causes and Treatment. <https://www.nidcd.nih.gov/health/age-related-hearing-loss> (2022).

Cross-sectional study among Nepalese high school children showed that 5.73% have hearing impairment<sup>4</sup>. However, there is not population-based ear and hearing impairment data. Nepal already signed (3 Jan, 2008)

& ratified (7<sup>th</sup> May, 2010) international Convention on the Rights of Persons with Disabilities (CRPD), all necessary health services needed for people who are blind, visually impaired, hearing impaired as well as mentally, cognitively and physically disabled will be included in urgent health service category<sup>5</sup> Karnali is the most underprivileged province of Nepal. Status of persons with hearing difficulties is yet to be identified. So, reliable, standardized, population-based data on hearing impairment in Karnali province is of urgent need. NNJS with financial aid from CBM/BMZ is seeking consulting firm/institution to conduct provincial level survey on ear and hearing impairment based on WHO ear and hearing survey guideline.

### 3 Objectives

The overall objective of this assignment is to conduct survey on ear and hearing disorders at Karnali Province, Nepal. It should provide:

- an accurate picture of prevalence of ear diseases and hearing impairment in Karnali Province, Nepal
- an overview of the most common probable causes of deafness and hearing loss in Karnali Province

#### 3.1 Primary objectives

- Estimate overall, age-specific and gender-based prevalence of hearing impairment in the population of Karnali Province
- Estimate the prevalence of different grades of hearing loss based on WHO guidelines
- Assess the most common causes of hearing loss among different groups of people
- Provide appropriate referrals, treatments and further actions

- 
4. Maharjan, M., Phuyal, S. & Shrestha, M. Prevalence of hearing loss in school aged Nepalese children. *Int. J. Pediatr. Otorhinolaryngol.* **143**, (2021).
  5. UN Human Rights. Convention on the Rights of Persons with Disabilities. *UN Treaty Collect.* **Chapter IV**, Human Rights (2022).
  6. WHO ear and hearing survey handbook. Geneva: World Health Organization; 2020. Licence: CC BY-NC-SA 3.0 IGO

#### 3.2 Secondary objectives

- Raise awareness about hearing loss among the people of Karnali Province
- Provide information for strategic planning and policy formulation to Government of Nepal
- Suggest possible prevention strategies that could help in preventing hearing loss

## 4 Methodology

Cross-sectional population-based household survey should be carried out which must use multi-stage cluster sampling design and ensure eligible population (age, gender based). It should utilize questionnaire interview and physical examination as per WHO survey handbook's guidelines.

### 4.1 Sample size

Sample size should be calculated for a cluster sampling survey using appropriate precision, confidence level and the estimated prevalence of hearing loss (based on WHO guideline).

### 4.2 Sampling strategy

Whole Karnali Province should be divided into clusters and survey should be carried out by systematic random sampling within the cluster. The clusters that need to be included in the survey should be identified using the PPS (probability proportional to size) as described in WHO ear and hearing survey handbook. Determining the number of clusters & households and mapping should be performed based WHO guideline as mentioned above. Population of province (Nepal population census, 2021) should be taken as a total population and calculate sample size. Data should represent whole population of Karnali Province. Survey should be conducted in such a way that will help to analyze age wise, gender wise and person with additional disability of any type. It should also evaluate the degree of hearing loss as guided by WHO guidelines i.e. normal, mild, moderate, severe, severe to profound and profound hearing loss.

### 4.3 Data collection tools

Questionnaire as well as ear and hearing examinations should be used to collect data.

#### 4.3.1 Questionnaires

Well-structured questionnaire to satisfy the objectives of the survey mentioned on section 3. It should be included in the technical proposal which can be modified as per need during pilot survey or survey process.

#### 4.3.2 Equipment

Participants from all clusters must have their ears examined using otoscopy by an ENT specialist/audiologist. Outcomes such as normal, otitis externa, impacted wax, foreign body, different degrees of otitis media, wet & dry perforation other conditions should be examined. Equipment and materials that are necessary for such ear and hearing examinations, data collection, analysis and documentation should be mentioned in the technical proposal and calculate budget for the same in financial proposal.

### 4.4 Fieldwork quality control measures

Technical proposal must provide the mechanism of fieldwork quality control measures which may include:

- Training to field work team: Data collection, physical examination
- Quality assurance of interviewer and clinical examiner
- Quality testing of questionnaire

- Motivation of respondent in data collection and physical examination
- Clinical interventions if any
- Possible amendment of questionnaire
- Monitoring mechanism
- Referrals mechanism

#### **4.5 Pre-survey field visit**

Prior to commencement of survey, team must plan to visit the clusters. Detailed of the pre-survey visit plan must be described in the technical proposal submitted.

#### **4.6 Data management and analysis**

Detailed plan of data management and analysis tools along with experienced expert in this aspect should be provisioned in the proposal.

#### **4.7 Referrals**

After clinical examination of ear and hearing loss in the field and categorization of the degree of hearing impairment, in situ intervention should be carried out if possible. Please calculate and include the cost in financial proposal. Severe cases observed during survey should be referred to the feasible health care facility.

### **5 Deliverables**

- Overall prevalence rate of ear conditions and hearing impairment among people of Karnali Province
- Age wise and gender wise distribution of hearing impairment among above population
- Prevalence rate of different degree of hearing loss, their interventions i.e. treatment & referrals
- Probable causes of hearing loss
- Urgent need and coverages of services to overcome such problems
- Total referrals and interventions carried out during survey period

### **6 Survey team composition**

The survey team must contain multidisciplinary team as per the guideline from ear and hearing disorder survey handbook published by WHO. The committee must include a:

- i. Principal Investigator (MD in ENT with at least 5 years of experience/PhD in Public health/MPH with at least 7 years' experience in related field)
- ii. Ear and hearing care professional (ENT specialist/Audiologist/s)
- iii. Public health expert/epidemiologist/s (Master in Public health (MPH with at least 5 years of experience in related field)
- iv. Biostatistician/s (Master in Biostatistics/Statistics with at least 5 years of experience in related field)

- v. Survey coordinator (Audiologist/s with least Bachelor of Audiology Speech Language Pathology (BASLP) with at least 1 year of working experience in the related field)
- vi. Ear and hearing care worker/s (trained paramedics able to undertake the ear examination and assessment of hearing loss in the field. Such persons must be trained, if required, to conduct the tests allocated to them)
- vii. Field workers (these individuals will be responsible for helping with enumeration, sampling, follow-up and local interaction. It is important that field workers be recruited from within the community)

The survey team must follow the steps for conducting a survey guideline given by WHO ear and hearing survey handbook page 6. The principal investigator should coordinate the team to design, implement and analyze the collected data. He/she should coordinate with health sector authorities of local, provincial and federal government. Survey coordinator should act as the focal point day-to-day survey management coordinating closely with the principal investigator and field teams. He/she must attend all planning meetings and should have knowledge and experience in epidemiology and field works.

Survey team is responsible for:

- Preparing survey protocol
- Formulating standard operating procedure (SOPs)
- Developing training materials and modules and organize trainings for field teams
- Planning and supervision of fieldworks
- Supervision of data management

Composition of field team and their competencies is key to carry out the survey task effectively and generate valid data. It should include following experts:

**Team leader:** Should have specialized knowledge on ear diseases and hearing assessment and has overall clinical and managerial skills to coordinate and supervise the team's activities.

**Ear and hearing care worker/s:** for ear examination and assessment of hearing loss in the field.

**Field worker/s:** for enumeration, sampling, follow-up and local interaction. It will be added value if field workers recruited from the community within sampling clusters.

## 7 Survey protocol

To obtain valid information survey team must develop a clear and detailed protocol. Planning team should develop the survey protocol in consultation with epidemiologist, biostatistician, representative of the community to be surveyed. It will facilitate the assessment of feasibility, specific geographical and environmental considerations. The survey protocol should strictly follow the protocol published by WHO ear and hearing survey handbook with necessary modification in local/regional modifications.

## 8 Supervision

The consulting team should undertake the assignment under the supervision of NNJS, CBM (supervision and technical backup)

## 9 Eligibility and Qualification

Nepalese NGOs, Consultancy firms, Academic institutions, Research institutions are eligible for application. The team members should have a minimum of Master's degree and at least 3 years of experience in the relevant field.

## 10 Ethical approval

The selected consultancy/institution must obtain ethical clearance from National Health Research Council (NHRC) before commencement of the survey. Informed written consent must be taken from every participant. In case of children (below 18 years old), written consent must be taken from legal guardian. Persons having hearing loss/ear disease identified during survey process should be referred to the concerned authorities/health care facility for further assessment and treatment.

## 11 Proposal submission details

Electronic copy (single pdf) with technical proposal along with following document should be submitted to [hr@nnjs.org.np](mailto:hr@nnjs.org.np)

- i. **Cover letter:** a brief introduction to the project highlighting why ear and hearing loss survey in Karnali Province is necessary and highlight its impact
- ii. **Title page**
- iii. **Executive summary:** Single page summary mentioning of essence and goals of survey, its potential impact and how it fits with the priority of funding agency.
- iv. **Institutional background:** research & development activities performed by the consulting firm/institution in past ten years, contact details of consulting firm/institution and the principal investigator.
- v. **Introduction:**
- vi. **Aims and objectives:**
- vii. **Implementation plan**  
It should mention clearly how the survey will be carried out following WHO guideline.
- viii. **Timelines**

This survey should be finished within 210 working days starting from the date of signing the contract. The technical proposal should include very clear timeline for successful completion of survey assignment. There could be slight modification if required after pilot study/during course of the survey process. Timelines should be presented in Gantt chart form

Central and Provincial level coordination NHRC ethical approval Questionnaire development Inception report including detailed plan of action with detailed framework of survey activities, methodology, survey protocol and schedule Training to enumerators/field workers	First 3 months after contract
Consulting workshop/Meetings with stakeholders at cluster level Execution of survey and referral of cases (only those who need further intervention)	Second 3 months after contract
Survey and referral of cases	
Survey data compilation and analysis	Last month
Provincial level sharing of the survey outcome	
Final report of survey outcome	
Financial report with supporting invoices	

ix. **Problems anticipated**

x. **Informed consent form**

Written well-informed consent form written in Nepali language (translation into local language if necessary) should be prepared and describe to the participant before conducting survey.

xi. **CVs of survey team**

Detailed CV of all personnel who are going to be involved in the survey must be included in the technical proposal.

xii. **Survey protocol**

Detailed study protocol along with standard operating procedures (SOPs) should be included along with technical proposal.

xiii. **Budget:** Detailed budget in separate financial proposal

The consulting firm/institution must submit a financial proposal that includes detailed budget breakdown in the given format (Table 1). The amount must be in Nepali Rupees. The payment is subject to tax deduction as per prevailing Nepal Government rules. The payment will be made in installment based on submission of deliverables.

Table 1: Budget template

SN	Description	Unit	No. of Units	Rate	Amount
1	<b>Staff cost</b>				

1.1	Consultant fee based on deliverables & timeframe				
1.2	Local staff				
1.3	Survey team				
1.4	.....				
<b>2</b>	<b>Travel</b>				
2.1	Air fare/Bus fare				
2.2	Vehicle hire: field transportation				
2.3	Local transportation				
2.4	Accommodation				
2.5	Food				
2.6	Field interactions				
2.7	Training cost				
<b>3</b>	<b>Stationary and communication cost</b>				
3.1	Mobile re-charge				
3.2	Reproduction of documents: printing costs				
3.3	Advocacy materials				
<b>4</b>	<b>Consultation meetings/workshops</b>				
<b>5</b>	<b>Equipment required (Ref: WHO guideline)</b>				
5.1	.....				
5.2	.....				
<b>6</b>	<b>Data management and analysis</b>				
<b>7</b>	<b>Report preparation and dissemination</b>				
<b>8</b>	<b>Miscellaneous</b>				
	<b>Total (1+2+.....+8) =A</b>				
	<b>Overhead (...%) = B</b>				
	<b>Grand total (A+B)</b>				

Add extra rows if necessary.

The financial proposal must include:

- a. Registration of organization and latest renewal
- b. Registration with Social Welfare Council for I/NGO (It will not apply for private companies)
- c. PAN/VAT registration certification
- d. Tax Exemption Certificate if applicable
- e. Latest tax clearance certificate (Applicable for private company)
- f. Latest audit report

## 12 Logistic support

The consulting firm/institution should manage logistic themselves for the completion of the given assignment however required cost will be paid in instalment basis as per the policy of NNJS

## 13 Evaluation criteria

Application will be evaluated based on following criteria





1. Technical proposal
  - Coherence of technical proposal
  - Survey design
  - SOPs
  - Clinical examination and referral plans
  - Team composition and strength of team members
  - Organizational profile
2. Financial proposal