

# The boat of life

15 boats sail through 2,500 river islands that dot the banks of the mighty Brahmaputra spreading hope and health for around 2.5 million people who had no access to basic healthcare. The success of Assam's boat clinics is therefore a case in point for unflinching will, meticulous planning, coherent system and successful medical outcomes. By **Raelene Kambli**

Initiating a public health programme is one thing, running it successfully is another thing and sustaining and scaling the successful model is an entirely different thing. While the former requires a vision, will and a meticulous plan, the latter requires passion, commitment, continuous effort to overcome road blocks and positive measurable outcomes. Assam's boat



Ashok Rao, Program Manager, C-NES, Guwahati.

clinics initiative is a classic example of a well intended healthcare initiative that has been successfully implemented and scaled. It has now been a model which can be replicated in similar terrains.

## The beginning of hope

The Great Brahmaputra, one of the major rivers in Asia which flows through India, China and Bangladesh has around 2,500 riverine islands spread across the state of Assam with over 2.5 million people living in these islands, nearly 80 per cent of whom are poor. This represents eight per cent of the total population living in and around the region. The 'Char Chapori' (an area of Brahmaputra river and its



Assam's boat clinics initiative is a classic example of a well intended healthcare initiative that has been successful



Camp at Dibrugarh

tributaries in Assam) have one of the highest infant and maternal mortality rates in the state. In the absence of emergency medical services, it takes four to six hours

for a patient from a 'Char Chapori' to reach a district hospital for treatment. As the mighty river flows through different channels it creates, it brings with

it, seasons of aggression and peace putting human life and livelihood at great risks. Every year, millions of people are displaced in annual floods in Assam.

## PATIENT TESTIMONIAL

**Parvati Bhuyan** (19) from village Mohmaora says that she has benefitted immensely from boat clinic. She and her entire family have been visiting the clinic. During heavy rains and floods it was a risk crossing the rivers, walking through dense forests to reach the health centres. Pregnant women, senior citizens, children have benefitted immensely

Many are affected by water-borne diseases. A major problem is access to medicines and sustained healthcare. Most islands totally lack basic infrastructure and services; from health to schools, from power and roads to drinking water and sanitation. The nature of the river is such that making Assam flood-proof is beyond the bounds of

possibility. Hence, what remains in the hands of a man is to develop the ability to cope with the aftermath of the floods.

Boat clinics initiated by the Centre for North East Studies and Policy Research (C-NES) in partnership with the National Health Mission, Government of Assam, is one programme that

and built involving indigenous local expertise from Dholia and Sadiya in Upper Assam and under the supervision of a boat builder from Dibrugarh. The wooden boat, 66 feet in length and 16 feet in width with space for an OPD, laboratory, cabins for doctors and nurses, kitchen, toilets, water supply, a generator

set and powered by a 120 Bhp Tata engine was completed within eight months' time. The journey of the boat clinic began since then," recalls Ashok Rao, Program Manager, C-NES, Guwahati.

What started off as a small initiative to provide healthcare access has now become a lifeline

for thousands of people living in this terrain. He informs that today they have 16 boats functioning under this programme with support from individual donors like economist Swaminathan Aiyer who has donated five of the boats, Supreme Court Swachh Bharat Expert Almitra Patel who has donated solar

lights to each targeted islands villages and corporations such as, Oil and Natural Gas Corporation, Oil India, Indian Oil Corporation (Assam Oil Division), Numaligarh Refinery Limited (NRL), State Bank of India, SELCO Foundation and Mahindra Mahindra Financial Service, Godrej Appliances, etc. The boat

## PATIENT TESTIMONIAL

**Namita Yadav** (32) of Dibrugarh district of Upper Assam, says that they have been visiting the boat clinic since 2008. Free treatment, medicines, and injections are provided at the clinics. It is not possible for them to visit private doctors as the visits are expensive. Initially they were unaware about pregnant women being administered TT injections. Now, these services are available every month

serves these marginalised river island dwellers with sustained basic healthcare facilities since 2006. The concept was envisaged to address and bridge the gap in access by converting challenges into opportunities.

"In 2004, C-NES won the World Bank's India Marketplace 2004 competition for this unique innovative concept of a 'Ship of Hope in a valley of Floods' that could transform the lives of rural communities. With the award money of \$20,000, a boat christened 'AKHA' meaning hope in Assamese was designed

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clinics operates in 18 districts along the Brahmaputra river, treating about 200,000 people a month for free. Moreover, the boat clinic at Malkangiri, Odisha, launched in May 2017 was inspired by the success of C-NIES' Boat story to provide service to tribal populations in (Manist) disturbed areas. C-NIES was invited to provide technical guidance and planning for the programme.

#### How these clinics function?

A series of camps to deliver services are organised by developing work plans for each district to cover the islands in association with the NIM, the Joint Directors of Health as well as C-NIES' teams of District Program Officers (DPOs) and Community Workers; the former are the organising core of the outreach. The teams make five to six trips per month to selected islands and conduct camps for 18 to 20 days taking into consideration of the routine immunisation schedule rounds. With the involvement of local communities, the DPOs hold camps in a series of villages.

"Camps are announced through ASHAs and village headman and local residents by the DPOs and CWs to ensure extensive participation. In upper Assam districts of Dibrugarh and Dhemajai, the targeted island population also receives prior information through the Brahmaputra Community Radio Station established by C-NIES with support from UNICEF," explains Rao.

The focus areas include the following: general checkups, minor surgical procedures and suturing, antenatal checkup and related services (critical for Assam with the highest maternal mortality rate in the country and an equally high infant mortality rate) e.g. injection – tetanus toxoid, iron and folic acid tablets, referral for complicated pregnancies, promotion of institutional deliveries postnatal checkup, immunisation, treatment of common childhood illness, basic laboratory services, referral of complicated cases and awareness building on the importance of family planning, general health as well as of personal hygiene, proper nutrition and

## GODREJ APPLIANCE'S EFFORTS



**JAISHANKAR NATARAJAN**  
Product Group Head  
Godrej Medical Refrigerators

**When did Godrej get associated with the boat clinic?**  
In 2017, the Jorhat boat clinic was installed with a Godrej Medical Refrigerator with Support from SELCO Foundation, to provide a reliable solution for storage of vaccines/ medicines required for an extended journey. The results were encouraging enabling longer journeys and greater coverage per trip. In one ideal trip, the boat would leave the banks of Jorhat and travel for a minimum of seven days, setting up medical camps on various islands before returning.

Past this success, in 2018, another boat, the Tirakata boat clinic was equipped with Godrej Medical Refrigerator.

The vaccines and other temperature sensitive

medical supplies are required to be stored precisely between 2 – 8° Celsius for them to be effective. Surge or drop in temperatures would render the costly vaccines unusable.

#### What is Godrej's contribution to this project?

The Godrej medical refrigerators are powered by the Sure Chill technology, a unique cooling technology that ensures perfect temperature control with no risk of freezing. This innovative technology stores the vaccines in a combination of ice and water based on the anomalous behaviour of water at 4°C, allowing perfectly stable cooling throughout the entire fridge.

Till date, out of the 15 'boat clinics' which currently operate, two are equipped with the reliable Godrej medical refrigerators. On an average, 16,000 people are provided with basic healthcare through various medical camps, awareness camps and immunisation camps every month, with the help of these unique boat clinics equipped with Godrej medical refrigerators. We are in talks to equip the remaining boats so that the positive outcomes observed in these two boats equipped with Godrej medical refrigerators, are scaled up.



A child undergoes check up

sanitation as well as screening of health documentaries to develop awareness on the issues. There are two MOs or Medical Officers and paramedical staff includes a nurse, a GNM, a pharmacist and one laboratory technician in each of the 15 boat clinic units and supported by three community worker and four boat crew. One district programme officer is the team leader who coordinates and liaisons with the community and district officials and is the core of the programme in each boat clinic unit. The district boat clinic units are supported by the programme

management unit (PMU) team stationed at Garwahati.

Speaking about the support received by the state, Rao informs, "NIM supports the total cost of the programme. UNICEF supports the community radio station and a unique education initiative which brought learning skills to out-of-school children on the shores of Dibrugarh and Lakhimpur. The school programme has since been taken up by the Sarba Shiksha Abhiyan, Dibrugarh. Training and capacity building support for the radio station is being provided by UNICEF."

#### Improved health outcomes

This programme focusses on improving health indicators by introducing certain core functions: Improve ANCs: Assam has the poorest MMR figure in the country as was mentioned earlier. Maternal deaths were more frequent in islands due to lack of health centres and trained TBAs to conduct safe deliveries. Most of the deliveries were conducted by the quacks or untrained birth attendants in a primitive way and thus contributed to high maternal deaths," highlights Rao. Through the efforts of boat clinic services,

now almost all pregnant women regularly comes to the health camps for ANCs and number of institutional delivery cases which is being constantly advocated by the health teams have increased. MMR in Assam showed the most improved decline from 490 during SRS 2008-2006 period to currently 287 SRS 2014-16.

**Increasing child immunisation:** According to Rao, people in these areas did not support child immunisation initially and the boat clinic team had to face a lot of challenges to convince the people about providing vaccination to their children. They were successful in convincing the people through intensive awareness sessions and counselling and now more than 80 per cent are being fully immunised.

**PNC services:** Assam also has had IMR figure in the country (44/1000 live births SRS 2016) and this is mainly due to lack of PNC services. According to C-NIES, the boat clinic services has been able to improve PNC services and ASHA workers are encouraged to ensure follow up visits among the targeted population.

**Family planning:** People have now started to think about the concept of planned family in these riverine areas and are convinced about the benefits of small family. In the early stages of the boat clinic intervention, C-NIES in partnership with Population Foundation of India (PFI) had worked on a project on family planning. In the first phase of the project implementation in 2009 there was strong resistance especially from religious minority dominated communities and most religious leaders. The project involved capacity building of field level health workers, extensive use of IEC & BCC, PCD, counselling, engagement of experienced medical professionals working in the field who could interact in the local dialect. Gradual changes took place and were visible in the 2<sup>nd</sup> phase of the project (2013-16) where misconceptions and taboos could be cleared and removed. Today people in these areas come voluntarily asking for family planning services.

**Number of surgeries:** Till March 2018, the boat clinics

have been successful to achieve 1098 laparoscopy surgery, 1012 IUCD insertion and 18 NSV. **Health awareness:** Apart from this, the boat clinic health camps also hold regular awareness sessions on health and related social issues making the people aware about the importance of looking after their health. Other services such as special immunisation i.e. JE are also regularly given in these remote areas.

#### Challenges

Efforts taken by the boat clinics' team are commendable; however, their journey is daunting. The greatest challenge for health workers in this terrain is the changing climatic conditions and natural calamities like storm, dust wind, very strong current and floods during monsoons.

#### Rao lists down some road blocks:

► **Bureaucratic shortcomings:** There are many limitations and difficulties while implementing this innovative healthcare services as this programme is implemented in association with the NIM, Assam and is totally dependent on timely fund release and medicine supply by the mission.

► **Technical difficulties:** Since boat is the only means to carry out the programme in these targeted locations, sometimes camps are affected due to technical difficulties of boat and also duration of boat maintenance repairs for smooth implementation of the project. The other challenge is frequent exit of young doctors who normally serve in the boat clinics to complete their one year compulsory rural posting to qualify for PG entrance in the state as boat clinics service is recognised by the state government as qualifying criteria.

► **Difficult terrain:** Low water level during winters is another challenge as the boat clinics have to be docked far away from the camp site or community and the team have to walk for miles to reach the camp sites carrying medicines, vaccines and other materials. On many occasion additional mode of transport like horse carts, tractors, canoes, small boats, motor bikes and cycles have to be used. Most roads leading to the ghats, (where the boat is docked) is

## SELCO'S VISION FOR THE BOAT CLINICS



**HUDA JAFFER**  
Lead Designer,  
SELCO Foundation

#### How is the SELCO Foundation associated with the boat clinic?

SELCO Foundation partnered with Centre for North Eastern Studies to understand how energy access would help deliver better services on the boat clinics run by C-NIES along the Brahmaputra. It examined aspects such as what does it mean to have unlimited energy available on a boat for healthcare delivery? How do we redefine energy infrastructure for health for island communities by partnering with C-NIES and how can such a model be institutionalised for other similar geographies or island nations of south east Asia?

#### What is your contribution to this project-investment done, etc.?

SELCO Foundation wanted to understand the modalities of energy access interventions, and the processes involved when designing the mobility in healthcare, specifically in a river travel context. We looked at two main aspects here: 1) Efficiency of energy consumption on the boat for various functions and designing for energy systems and technology that can allow for decentralisation and portability; 2) Analysing the cost on energy from an operators perspective on what savings does it lead to? Does it add value in terms of the quality or quantity of services; or even general well being of the service providers? What does that mean for a health program from the state or government perspective?

These were some of the questions we were trying to answer and innovate upon through the pilots done in partnership with C-NIES.

#### What are the lessons learnt from this project?

SELCO Foundation early on realised that the largest

impact arising out of the intervention would be the staff of the boat itself, who would in turn be able to extend this benefit to the communities being served too. Access to energy (in a manner that wouldn't run out – as in the case of kerosene which needed to be monitored and carried along with every 10-15 day trip by the staff on the boat – but would be generated and stored everyday) meant that the doctors and nurses were able to deliver services in a comfortable manner with equipment and appliances that helped increase their productivity. During the night, having a light on, lab equipment still available for use, laptops to send emails, or even to tend to some emergency cases, were specially a huge benefit.

The partnership with C-NIES, as we've said before, looked at re-defining healthcare delivery. It really helped us prove another dimension to decentralised energy generation, the democratisation of services that can result through the process. Energy becomes mobile, which in turn means appliances become mobile and services get delivered at your doorstep. Often we talk about healthcare being free, but the cost to reach the health centre is never accounted for. Decentralised energy and the model of C-NIES, decodes this last mile transaction cost completely, which is often the biggest gap.

These models will be also useful for reaching out to flooded communities during disasters. We also realised that the high recurring expenditure that was incurred by C-NIES on diesel and other fuels could be easily re-allocated to a loan or invested in the beginning in the capital cost of solar. The amount that is spent by C-NIES on fuel for the health appliances and other technologies would be recovered within four years, resulting in savings from their own, and a much more economical model thereof.

In our analysis on how to optimise for all energy needs of the boat clinic, it was also important to understand the criticality of the different energy needs and the most economic way of delivering it. The boat currently uses a mix of energy sources. It was critical to shift the equipment and appliances on solar (with panels installed on the boat), but the boat itself continues to run on diesel.



Solar power installation at Jorhat boat clinic

between 5 to 60 kilometres distant and is kuccha or pucca but broken and with large pot holes in most stretches. Constant change in the river course and

erosion of land mass which forces families to shift to safer or different locations also make it difficult to serve and meet targets set.

#### Overcoming obstacles

All parties involved in this programme are constantly reinventing strategies and are coming up with solutions that

can combat challenges. "A one-size-fits-all does not and cannot work here – even a distance of few kilometres turns up new challenges, calling for fresh innovations. Learning through experience and adaptation are mostly followed to overcome different situations by each boat clinic units while still maintaining the standard operating protocols," opines Rao.

#### Keeping it going

The vision for the future is clear. They envision to add elements such as bringing solar energy to the poorest households, education through mobile technology, uplifting the people living in these regions, coming out of generations of social and geographical isolation and more. Currently, in addition to human healthcare, veterinarians are also transported to the islands where large cattle populations live, because these habitations are one of the primary centres of milk production in Assam, but, like their owners, the livestock too have no access to healthcare. This is being expanded. Most importantly, the boat clinic programme aims to provide additional education to these isolated population through continuous awareness programmes for better health and good living conditions.

The goal for the future is to see that the isolated island communities are no longer isolated in terms of receiving regular quality healthcare services at their door step through up gradation and improvement in digitalisation, including additional services like dental service (presently two dental set up on boat clinics at Jorhat and Bongaigaon) eye, regular visits by ENT, O&G, paediatrics specialist, linking and networking a robust system of referral transport system for all emergency and referred cases. All VHSN committees are actively involved in the holistic health issues of the community. Going forward, CNIES, the Assam state government and all other stakeholders in this initiative will need to keep up with this momentum and conviction to improve, scale and replicate this model in areas that need these kind of services.