APPROPRIATE TECHNOLOGY IN HEALTH -AN EXPLORATORY WORKSHOP

Facilitated by: SOCHARA, SELCO Foundation & Logistimo

A report compiled by Rajeev B R, Ravi Narayan and Mahadeva Swamy, SOCHARA

Photo Source: CLIC, SOCHARA

An exploratory workshop on the theme of Appropriate Technology in Health was held on 9th February 2017 at the Logistimo Office.

1. The objectives of the workshop were:

1. To review briefly
   - The history of **'Appropriate Technology in Health'** (AT) as a core component of the Alma Ata Declaration – what and why
   - Overview of the AT in health initiatives in India during the last two decades – Indian Council of Medical Research initiatives, community health projects with AT focus, medico friends circle and Jan Swasthya Abhiyan discussions on AT, and other initiatives like ASTRA - IISc - Bengaluru and RIM, IIT – Chennai etc.,
2. Review the revival of interest in AT as part of the new concept of social innovation in health and health care - identifying issues and concerns (for what and for whom?)
3. Assessment of new health technology by the Primary Health Care lens - a SOCHARA initiatives
   - Assessment of product innovation; process innovation; communication innovation; distribution innovation; economic innovation and paradigmatic innovation

4. Gauging interest in a **Appropriate Technology in Health** - Innovators Network to discuss issues, perspectives and questions arising out of praxis and evolving collective, collaborative and action as and when required.

2. Participants

The participants included team members from SOCHARA, SELCO Foundation and Logistimo and other associates from Institute of Public Health, Karuna Trust, AID India, Janitri and individual social entrepreneurs. A total of 27 participants participated in the workshop.

3. Report of the workshop- From Appropriate Technology to Social Innovation: Overview and Challenges

The workshop started with welcome by Anup of Logistimo and Ramnath of SELCO. This was followed by a round of introduction by all the participants.

Photo Source: CLIC, SOCHARA

3.1 Dr Ravi presented a brief note on the history of the development of the concept and development of AT

- In 1970s, the appropriate technology for development movement was strongly advocated by philosophers such as EF Schumacher. (https://en.wikipedia.org/wiki/E._F._Schumacher)
- Dr Ravi personalised his experience and interest in AT since East Pakistan refugee camps in 1971 and the need to "innovate" – building the tents and huts for the clinic, latrines etc, learning from an Army manual.
- He discovered Maurice King's book which described how a low-cost healthcare centre could be built. According to King, 'the maximum return in human welfare must be obtained from the limited money and skill available' which means medical care must be adapted to the needs of an intermediate technology.

- During his public health training in UK, he came in touch with David Morley and his concept of under 5 clinics (a process innovation) and road to health card. These were simple innovation which communicated the nutrition status of the children pictorially. Health card helped increased communication about child health with mothers.
- Experiences from China about the health workers called barefoot doctors and other innovations were also shared.
- In the 70s, in India too there were important reports such as the Srivastava report, and the Janata Health Worker Manual which was a plural manual drawing best practices from Ayurveda, Yoga, Unani, Siddha, Homeopathy and Naturopathy. The use of locally available resources to treat diseases is in fact appropriate technology.
- He went on to discuss the innovations done as part of his work at the Department of Community Health at St John's Medical College like the Mallur health cooperative, which was the first such experiment in healthcare and community funded insurance.
- In August 1974, IISc created ASTRA (Application of Science and Technology for Rural Areas) (Now known as Centre for Sustainable Technologies http://www.cst.iisc.ernet.in/) to initiate, catalyse, sustain and grow the institutes work of relevance to rural development. ASTRA's work focused on generation and diffusion of technologies appropriate for rural development thereby focusing largely on needs of rural poor. It also aimed at increasing rural participation and control and self-reliance in harmony with rural environment to ensure sustainable development. In training programs of appropriate and rural technology, SOCHARA introduced ASTRA participants to challenges in rural health care as stimulus for innovations.
- In 1978, the Alma Ata declaration emphasised the importance of Appropriate Technology, alongside other aspects of comprehensive primary healthcare. (http://www.who.int/topics/primary_health_care/en/) According to the Alma Ata declaration, Primary health care is essential health care that is based on practical scientifically sound and socially acceptable methods and **technology**, made universally accessible to individuals and families in the community through their full participation and at a cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. This care should bring health care as close to where people live and work.
- Health link Worldwide (http://www.health-link.org.uk/) was founded as a UK-based non-governmental organisation on 20 July 1977. It was originally called Appropriate Health Resources Technologies Action Group (AHRTAG.) Health link was founded by Dr Katherine Elliott and other members of the Intermediate Technology Development Group (now Practical Action) Health Panel. Its aim was to promote health education by collecting and disseminating information on solutions to health and development problems and providing technical support to those involved in health and community development programmes throughout the world. SOCHARA had a link with AHRTAG since its inception and was resource person for many of its newsletters.
- The contributions of David Werner with Where There is No Doctor, and Disabled Village Children which are innovative manuals to address health problems in remote areas using simple measures. (http://hesperian.org/books-and-resources/)
- During the 1990s, due to increase in commercialisation and commodification of health and health care and the selectivising of primary health care, the interest in AT was replaced by a

new interest in regulation, control and countering the glorification of technology in medicine and health care (http://www.mfcindia.org/mfcpdfs/MFC150.pdf)

- Among community health and peoples' health groups due to force of corporate led globalisation which was increasing inequities the people's health charter and the PHM which evolved beyond the PHA1 also focussed on this new concern rather than appropriate technology that Alma Ata had recognised.
- By 2000, Social innovation replaced the term AT. Health and Medical Innovations remain in the bottom of the pyramid concept. Social Innovations as startups, entrepreneurship, not for profit initiatives etc. have seen a new facelift.
- During the early 2000s, "innovation in health" became the buzzword. As part of the evolving Global Forum for Health Research, SOCHARA participated in the evolution of the concept of social vaccine and social innovation to relink the reviving primary health care to the AT for health. (http://sochara.org/Social-Vaccine)

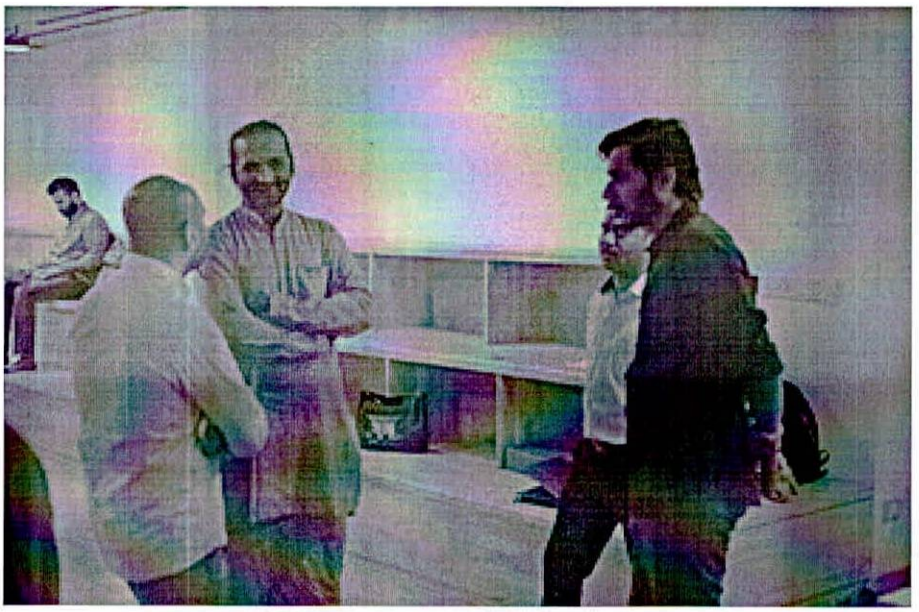


Photo source: Logistimo

Photo Source: Logistimo

- Since the 1990s, India has been looked upon as an important market investment destination, but several hundred million continue to live in poverty, who cannot "consume". There was a need for a different strategy for this population.
- Innovation has a broad meaning, and it is important to ask the questions "for whom", "what", "why", and "how". JSA has published a book for the second National Health Assembly entitled, 'New Technologies in Public Health' reflecting on important questions such as who pays? who benefits? who decides? who uses? who assesses? (http://www.communityhealth.in/~commun26/wiki/images/6/67/JSA_New_technologies.pdf)
- Innovation can also be thought of as - product innovation, process innovation, communication innovation, distribution innovation, and economic innovation. Innovation encompasses the entire process from the generation of new ideas to their transformation into useful things to their implementation. Innovation may involve new products, manufacturing processes and services, management structures, methods and policy.
- Social innovation involves new ways to manage people, processes and information, while technological innovation involves material invention. The technological and social aspects of innovation are intertwined and complementary. For example, when drugs are made available to poor people through innovative schemes like pooled purchasing, social marketing, community health action groups etc. In this regard, there is a need to look from whose perspective is it being evaluated. Whether is it producers such as researcher or industry driven, or policy makers or program planners or through service providers (govt/private/cso) or by people (Community, and or Patient).
- When something is called innovative, it should promote Health for All, should increase personal /family/community autonomy, and prevent or promote rather than focus on curative aspect. It should not promote health for those who can pay or promote producers and innovators interests.

3.2 Rajeev discussed few examples of innovations

- ASHWINI hospital in Gudalur, Nilgiris in Tamil Nadu was built using low cost materials available locally for construction. Gudalur Adivasi volunteers built ASHWINI hospital by baking their own bricks.
- Clay cooker was designed by Mansukhbhai Prajapati in Rajkot. Mansukhbhai was inspired by local potters to create this innovation. It costs only 500 rupees for a 3 litre cooker. The clamps are made from stainless steel for ensuring proper closure of the lid while cooking and bakelite handles are provided for firm gripping. (http://nif.org.in/innovation/clay-cooker/740)

Photo Source: http://nif.org.in/innovation/clay-cooker/740

- One of the major water related issues across the world is Fluoridation where the fluoride levels are higher than 1.5mg/L. Defluoridation is a process which reduces fluoride levels from 8 to 1.5 mg/L in 2 hours. A community based defluoridation was carried out in Kenya where bone char was used to remove fluoride. Although economical and easy to use, producing bone char was laborious and culturally non-viable due to objection by religious ideologies for using animal bone char.

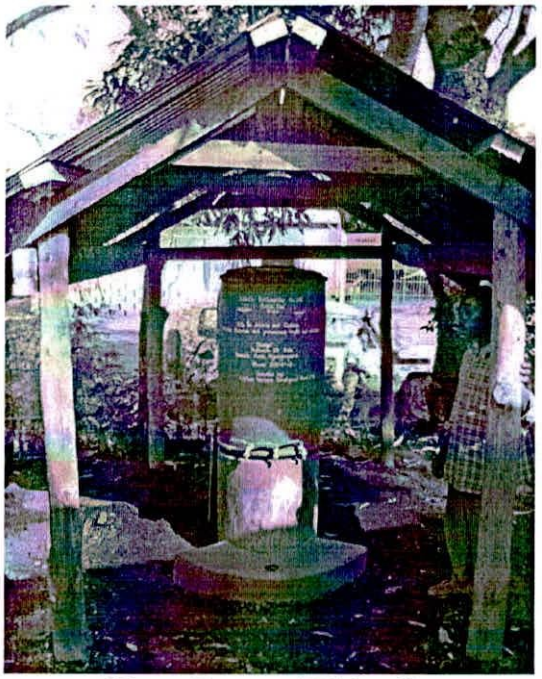
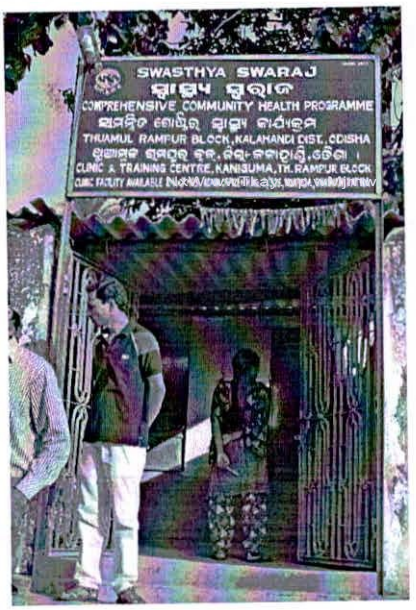


Photo Source: Wikipedia

- The "Hippo Water Roller Project" was established in 1994 in response to the unique needs and constraints in terms of access to water of rural women and children across Africa by Pettie Petzer and Johan Jonker of South Africa. Now simply referred to as "Hippo Roller", the broad social impact of this social enterprise has been felt in more than 20 countries, with a total distribution of 50,000 Hippo Water Rollers, and a reach of close to half a million people. Hippo Roller works with rural and impoverished communities to help improve access to water. But it wasn't successful in hilly regions due to terrainous slopes which made filled hippo rollers difficult to pull. (https://www.hipporoller.org/)

Photo Source: Google images

- Solar energy solutions are provided to Swasthya Swaraj, a community health clinic in Orissa by SELCO for a sustainable health care delivery. (http://www.swasthyaswaraj.org/)



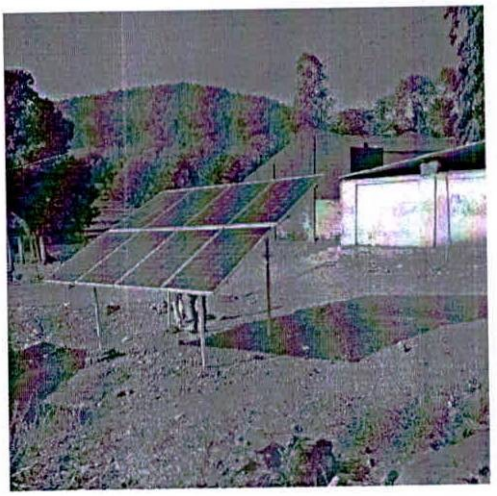
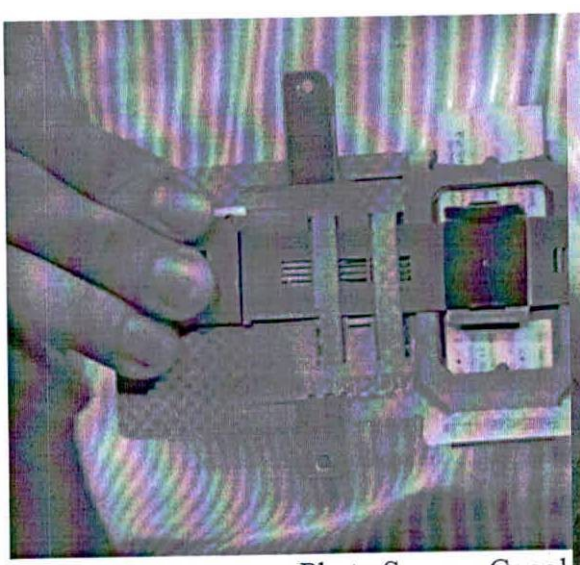


Photo Source: SELCO Foundation

- Similarly, a cheap, rugged microscope made of paper by Manu Prakash, an associate professor at Stanford University. It can detect deadly blood-borne diseases causing organisms such as malaria, African sleeping sickness, schistosomiasis. The Foldscope can magnify samples up to 2,000 times. Although, it is a onetime use scope, it can be used for about 4-5 times and costs just 45 to 55 cents. (https://www.foldscope.com/)



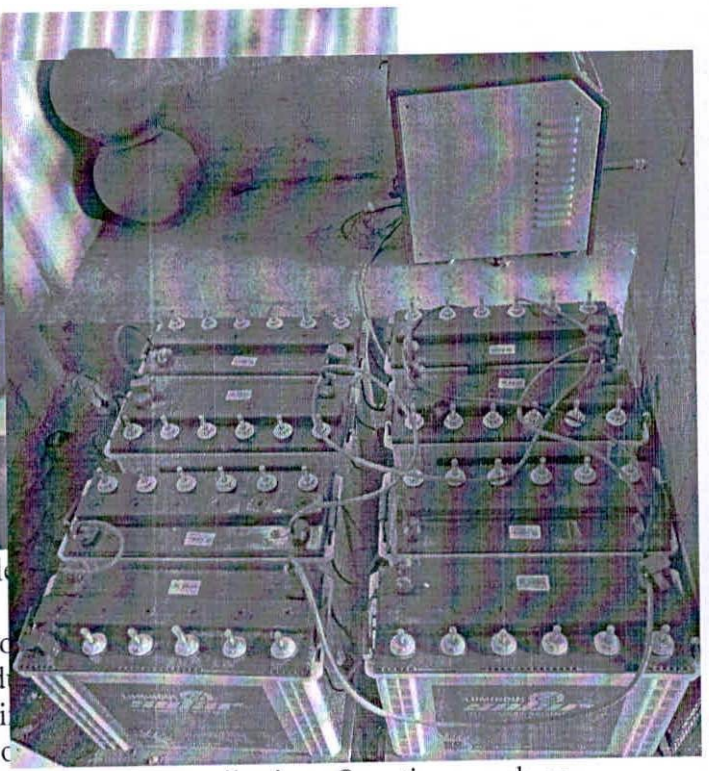


Photo Source: Googl

A brief discussion on community legitimacy of the pr initiated. The government, communities and the individ and solve the issues relevantly. Technology won't sustai there is no ownership of the problem. The politics o understood well. The design of the product should have a longer contribution. Questions such as how do we reconcile the relationship between the end users and innovators, when does the problem situation becomes pertaining to 'them' and not 'us'. Can the philosophical thought of people should

find the solutions to their own problems be justified?

3.3 Several questions and comments followed the discussion. They are summarised in the following categories:

Accountability and ownership

1. In current globalised times, self-determination is a challenge. How do we ascertain the community's legitimacy? Where is the ownership of the problem? Are we trying to be philosophical that people should solve their own problems?
2. Is community input always needed?
3. How closely to work with people?

Sustainability

1. The focus has been on technology, not how it will sustain or be relevant in the context of evolving technology
2. Funding dries up for a project if the outcomes are not met or if positive results are not seen.

Applicability and impact

1. Several pilots are conducted – but it appears that often they are not taken to the next step. When do we move from pilot to make a fundamental difference? There are so many innovations, but the problems also remain the same.

Communication in AT

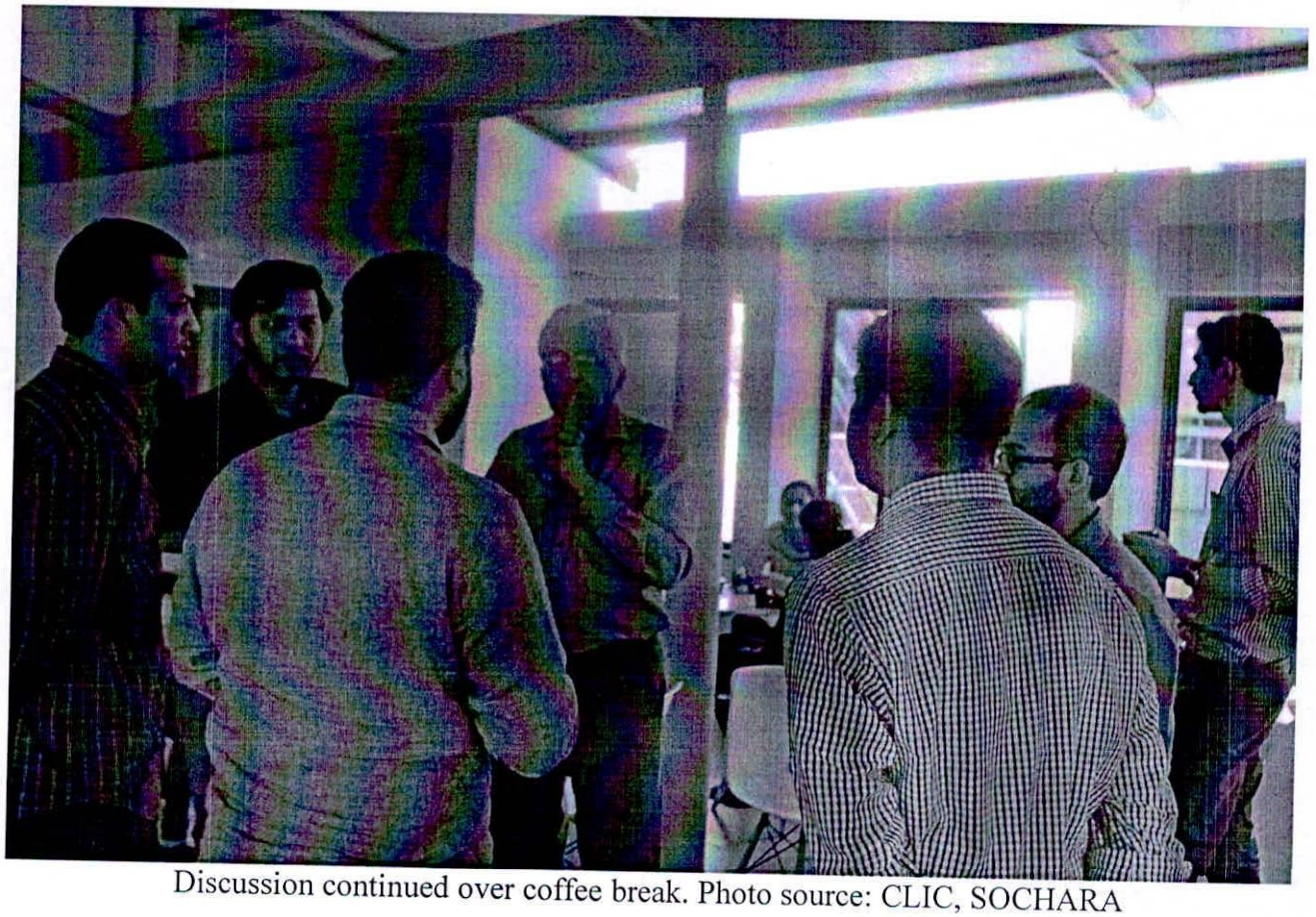
1. Without adequate support and information, good technology receives a bad name
2. Is there a framework for common man to decide what he/she wants? There is a need for better information at the level of people.

Community needs and problem solving

1. Sometimes, the temptation is to just fix a problem if an easy solution is visible.
2. If people want TVs, are we going to give them TVs? Who are we to decide whether TVs are good or bad for people?
3. What is driving a technology solution? Where is the need/desire to innovate coming from?
4. How do we make products to be used by inaccessible communities? There is access to coke but not oral rehydration salts in Africa.

Appropriate in AT

1. What is "appropriate" – a new technology, or the modification of an older technology?
2. Where do we start thinking for Appropriate technology? From people's perspective?
3. It is not "packaging" low cost technology



Discussion continued over coffee break. Photo source: CLIC, SOCHARA

Dr Ravi suggested that we can take up these issues in a follow up meeting in future, and ended with two case studies of inappropriate and appropriate technology.

1. **Mandla bed net study** – where bed nets had been promoted aggressively for malaria control but the local people were not in a position to use them due to poverty, survival, marginalisation and other social determinants. (Singh N., et al MRC (ICMR) 1993)
2. **Jaipur foot** – when rural people informed that they couldn't squat, sit cross legged or climb trees with the prosthetic foot, the Jaipur foot was innovated by rural carpenters. Urban experts said such a prosthesis cannot be designed. (http://jaipurfoot.org/)

Both these relevant case studies emphasised the need for understanding community context and respecting community knowledge and skills to evolve technology appropriateness.

4. Breakout group exercise and discussions (e.g. product, process, economic, communication and distribution innovation etc.)

In order to understand how the social innovation works, there should be an evaluation in terms of the following checklist: does it enhance autonomy? Is it facilitating control? Is it promoting wellbeing and public good? Sometimes we miss certain nuances of innovation which play a major role in the successful innovation such as whether is it culturally sensitive? Whether is it adapting local creativity? Is it eco sensitive? These questions were answered in an exercise.

The aim of the exercise was not to assess technology but to instil thinking in AT. All the participants were divided into five groups. The assessment was based on the following five themes: product, process, economic, communication and distribution innovation. Each group was assigned one of the above theme to discuss in detail on a product that the group could choose. The group members also were asked to assess their product on other criteria apart from the assigned theme. The assessment tool built on an earlier SOCHARA ppt for the GFHR forum in Cuba in 2009 had had

totally 25 criteria with five sub themes which was adapted for this exercise.

PRODUCT INNOVATION

- Is it low cost?
- Is it effective?
- Is it synergistic with local culture?
- Has it been demystified in local language?
- Is it maintained by local communities?
- Is it eco sensitive?

PROCESS INNOVATION

- Is it accessible to all?
- Is there a community participation?
- Can the community own it?
- Is there a community monitoring?
- Is there a community feedback?
- Is there a community evaluation?

COMMUNICATION INNOVATION

- Is it communicable in local languages?
- Is there a decentralized communication?
- Is it adaptable for local communication (Folk Theatre)?
- Is there a community of learning?
- Is the communication for advocacy/change?

DISTRIBUTION INNOVATION

- Have you involved self-help groups?
- Is it distributed through community based organization?
- Is there a cooperative involvement?

ECONOMIC INNOVATION

- Is the promotion linked to a micro credit?
- Is it covered by community health insurance?
- Is it covered by general insurance?
- Is there a cost sharing partnerships?
- Are there any demand side and supply side **initiatives?**

The purpose of this exercise was to help participants understand the sort of questions that need to be explored with any technology being promoted for health care to ensure that it is community relevant, appropriate and communitised for Health for All goals. A more formal assessment tool can be developed by the group as it evolves further.

Group 1 (Adithya, Anup, Prahlad, Kavya, Fathima and Devdutt) discussed on product innovation.

Participants of this group mentioned that not all questions were relevant for their work. One participant mentioned that this questionnaire is similar to the vulnerability assessment tool used in environmental impact assessment. Another participant questioned, what is the impact of creating the product? There is a need to remove the innovator cap and wear the citizen cap.

Photo Source: CLIC, SOCHARA

Group 2 (Mrinalini, Sam Joseph, Sam Rathnam, Diljith and Abdul) discussed on process innovation

The group members assessed the technology's applicability at the grass root levels. This further led to the sharing of Logistimos' contribution towards technology in health. One of the members explained the process of developing software for healthcare system that is done by Logistimos. The group members also discussed about software technology in health, in which, one of the group members expressed that software are largely used by the health care providers not the community therefore it cannot be the appropriate technology, being not accessible to all.

The group found that many of the criteria given in the tool to check the appropriateness of the technology are not applicable to the product. Being a very old product, the availability and supply chain of the product in the contemporary context was questioned. As well as the usefulness of the product in the present times where water subsidiary is given to the farmers was discussed. After the discussion, the group presented the particular technology to everyone along with other technologies discussed earlier in the group.

Photo Source: CLIC, SOCHARA

Group 3 (Mahadeva Swamy, Ammaar, Senthil, Arun, Neeraj) discussed on Communication

The participants reflected on the thought provoking questions. The questions were not retrospective but to think for future. Communication in both ways i.e., from both community and innovators is needed to think beyond to sustain the innovation. Solar cooker and uterine contraction monitoring device was discussed by the participants. Participants reflected that some of the questions were not relatable since they hadn't started working on it. It was made clear that the questionnaire is to provoke to think socially.

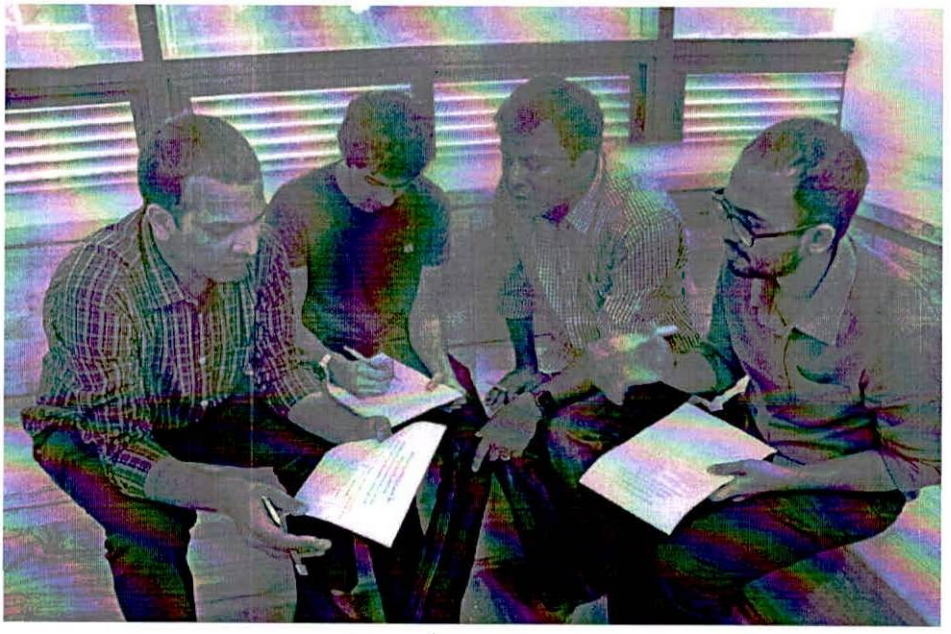


Photo Source: CLIC, SOCHARA

Group 4 (Sharath, Saloni, Anusha, Alfred and Varsha) discussed on Distribution innovation.

The group discussion revolved around the topic whether Embrace Baby warmer is appropriate technology or not. The group reflected upon whether the warmer is accessible by all? Is there a community participation? It was also discussed that the product was already innovated and was pushed upon people to use. Lot of discussion was focused on community ownership. The monitoring is done by the ANM's in PHC's, community does not have any hold on either owning or monitoring of the product. Group felt that community's feedback was sought after the product was launched rather than involving or getting feedback in/during the process of innovating baby warmer. Communities gave their evaluation as on whether it is helpful to them or not in their setting.

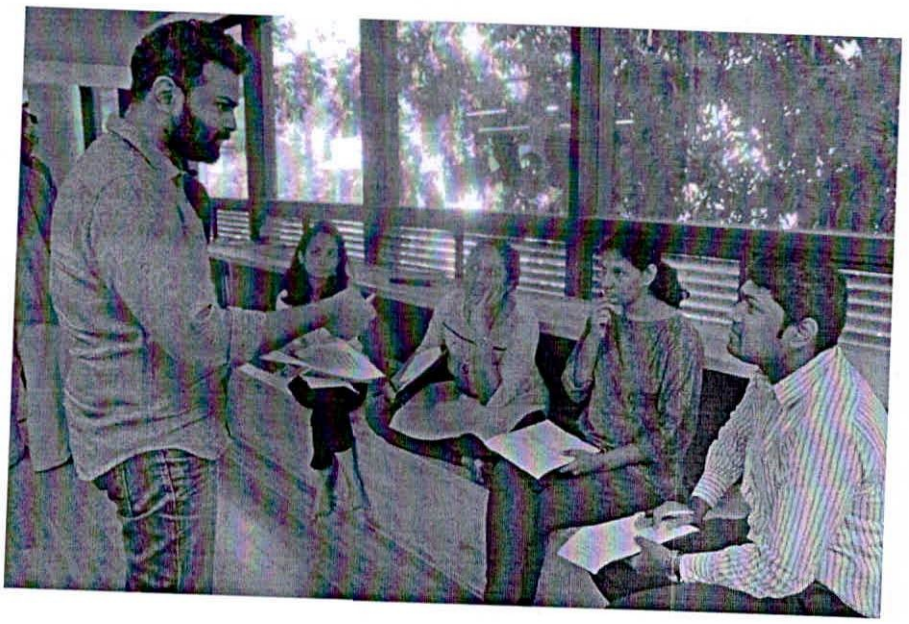


Photo Source: CLIC, SOCHARA

Group 5 (Ramnath, Suresh, Dwiji and Rajeev) discussed on economic evaluation.

One of the participant who was working on agri based technology mentioned that it is imperative to have self-help groups and community involvement through them to distribute the product. Women especially make an important social capital to penetrate the community. Partnerships with local community based organisations gives a positive value. The definition of the product or innovation around an issue has to be viewed through different lens. Both communities and the innovators have to think through mutually to understand the perspectives.

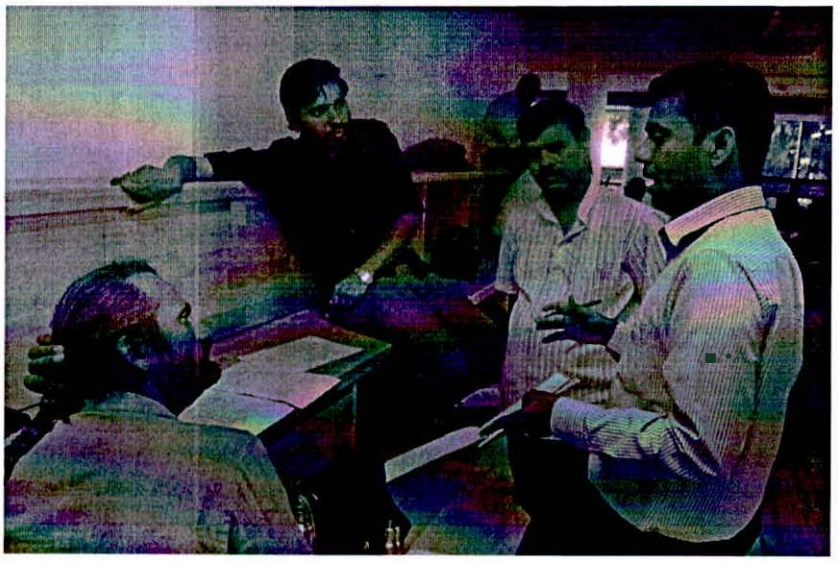


Photo Source: CLIC, SOCHARA

5. Conclusion

The aim of the workshop was to get a sense of what is happening around us by people aiming for the same impacts, and allow the evolving network to self-select for further deeper engagement in subsequent iterations and arriving at natural synergies and organically formed working groups exploring different themes.

Ravi finally concluded the discussion by quoting Drucker's lines- '*In a few hundred years, when the history of our time will be written from a long-term perspective, it is likely that the most important event historians will see is not technology, not the internet, not the e-commerce. It is an unprecedented change in the human condition. For the first time-literally-substantial and rapidly growing numbers of people have choices. For the first time, they will have to manage themselves. And society is totally unprepared for it.*'

Lunch was hosted by Logistimo followed by discussion with some of the participants. One of the outcome of this discussion was to create an e group and invite people to keep the discussion alive.

6. References:

a. www.sochara.org
b. www.communityhealth.in
c. http://mohfw.nic.in/NRHM.htm
d. www.mfcindia.org
e. www.phmindia.org
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