

Scouting, Documentation and Standardization of use of Bamboo in Livestock and Poultry with Special Reference to Northeast India

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Abstract

People of NE India are using bamboo in their day to day life traditionally since time immemorial. Small holder livestock and poultry farmers use bamboo in husbandry practice extensively to reduce cost on fixed expenditure on their farm operations. It has also stimulated innovative use of bamboo in livestock and poultry husbandry in different rural areas. Many rural innovations on bamboo use in husbandry practice vanish with time due to lack of organized effort to document and promote such innovations. There also exists a gap in information and technology updates amongst the rural people on the use of bamboo in livestock farming. The paper explains in detail the process undertaken in a project in this regard.

Varied use of bamboo in Northeast India, grass root innovations, challenges on durability, cost benefit, acceptability, adoption of modern technology in rural set up, skill up gradation, and scopes for alternative bamboo enterprise development etc are recorded through scouting in different parts of the region. A list of feasible ideas was prepared through a number of consultations and e-discussion. A total of six selected prototypes were developed through Participatory Technology Development where farmers, bamboo craftsmen, grass root innovator, design experts, market intermediaries, experts in livestock and poultry husbandry participated.

Final designs of selected items, standardization of developed designs, entrepreneurship development, cluster development, creation of wider market of the developed products are the ways to be explored under the project. The whole process prospects for new ideas continuously and the steps are linked and dependent on each other.

It is envisioned that enhanced use of bamboo items shall augment small holder livestock and poultry farming. This will also create alternative bamboo enterprise amongst the rural masses. Wider market of bamboo made animal husbandry items will encourage more bamboo plantations by farmers and craftsmen for environment friendly growth.

Introduction

Bamboo is used traditionally in many countries in construction of houses, household appliances, storage structures, livestock and poultry sheds and in various other forms in rural areas, since time immemorial. There is ample scope to popularize bamboo use in smallholder livestock / poultry farming, as these are locally available, durable and economical. Use of bamboo will not only reduce fixed capital cost but also permit smallholder farmers to expand / reduce the farm size / shift operations with limited investment. Use of modular bamboo items in husbandry practice will make small scale commercial farming e.g. layer farming with improved bird possible for both urban and rural poor, thus enhancing livelihood opportunity and quality nutrition. The designs, durability, mass production and market appeal of bamboo structures and items can also be improved to a great extent with modern scientific treatment, use of equipments and processing.

A model project was initiated in the later part of the year 2008 covering few North Eastern states of India for continuous scouting, documentation and standardization of innovative uses of bamboo in smallholder livestock and poultry farming.

Project conceptualization

The initial conceptualization of the project was made during a regular field visit of FARMER team to an egg production cluster in Assam (India). The trip report of the visit, clubbed with desktop research and in- house consultation was the basis for finalization of the following objectives of the project.

- A. To scout and document use of bamboo in livestock and poultry farming in N.E. India.
- B. To standardize selected developed items in the context of animal husbandry practices.
- C. To augment enterprise / cluster development.

Linking with three broad segments of a typical technological innovation system¹, the entire project is divided into three major steps viz. Birth Phase, Survival phase and Growth phase (figure 1). A number of sub steps are undertaken under each major step towards achievement of the ultimate objectives of the project. These steps are interlinked, open for new ideas and continuous.

¹ Gupta Ashwini, Dutta P K Indian Innovation System – Perspective and Challenges : Technology Exports Vol-VII No.4 , April-June (2005) URL: <http://www.dsir.gov.in/pubs/te/te200502.pdf>

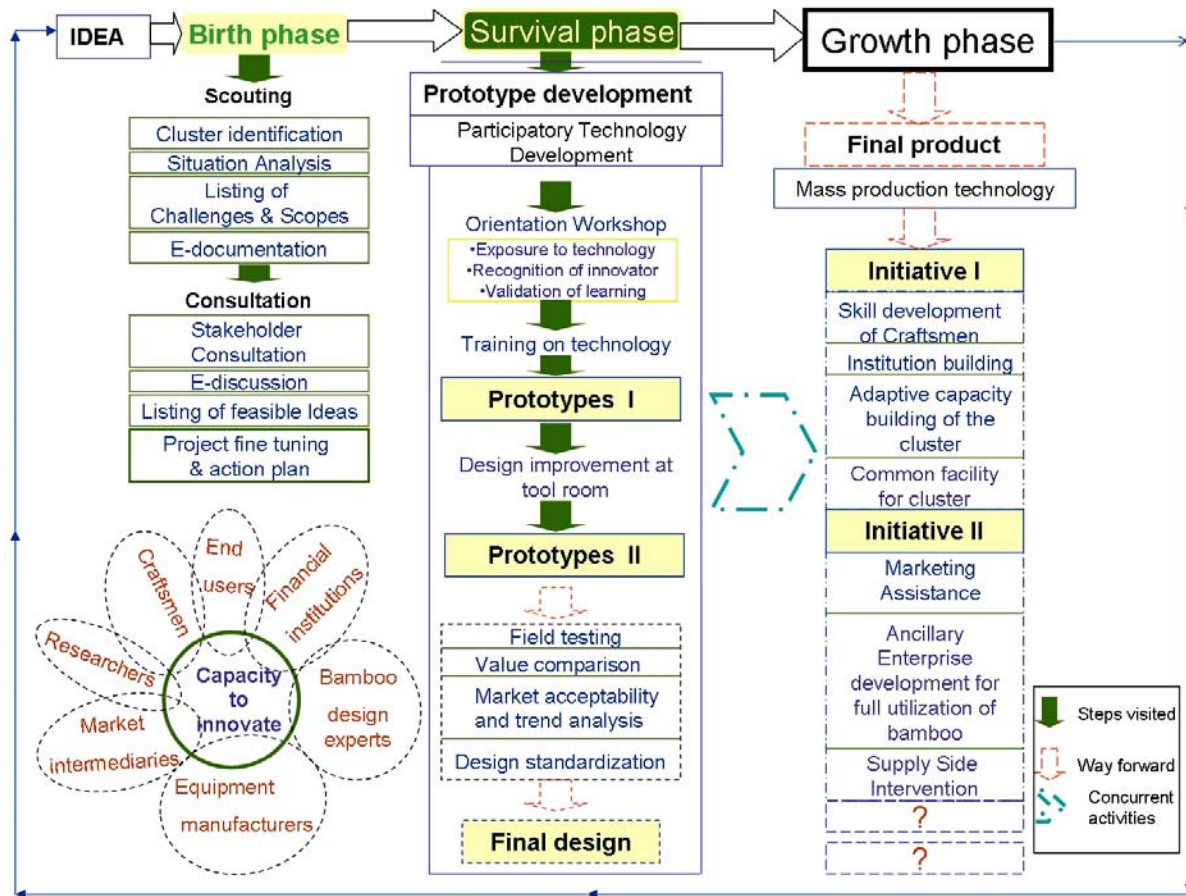


Figure 1: Project process flow diagram developed in-house during the inception meeting and updated at regular interval incorporating critical learning.

During the project conceptualization, much importance was also accorded to sincere approaches related to participatory learning on challenges and scopes, Participatory Technology Development process and enhanced interaction amongst different stakeholders. This approach was in-built in the project so that same can strengthen innovation and adaptive capabilities of identified clusters.

The Birth Phase

Scouting

Cluster identification:

As decided during project inception discussion, two clusters were identified in the state of Assam, North east India viz.

(1) Small holder layer / broiler farming cluster in a place called Golaghat and

(2) Day-old-Chick carrying bamboo basket making cluster at a place called Bezera.

Situation analysis: To record different use of bamboo, extent of use, processes adopted, uniqueness of grass root innovation, technology adoption etc. a situational study was undertaken under the project using participatory technique. The study covered a total of 50 numbers of livestock and poultry farmers, five grass root level innovators and more than 20 bamboo craftsmen. Number of innovative uses of bamboo was recorded during the situation analysis. Most prominent amongst them were bamboo layer cage (figure 2) for layer farming and raised bamboo floor (figure 3) for broiler bird rearing. Current challenges faced by users and scope for further improvement was identified during the situational analysis process.



Figure 2: Bamboo layer

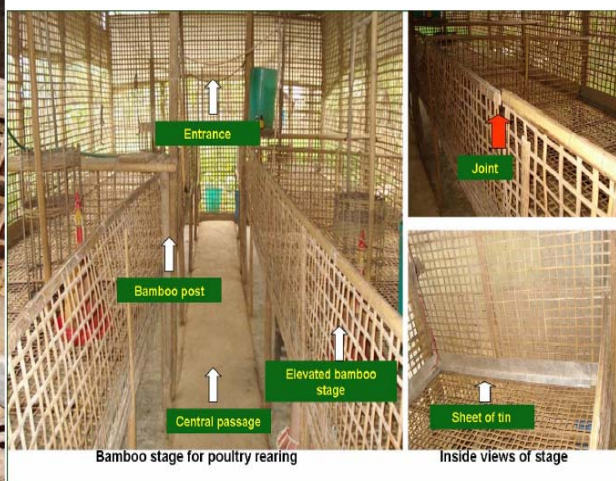


Figure 3: Raised bamboo floor for rearing broiler chicken

Major challenges identified from the point of view of farmers in use of bamboo made items are (1) Convenience – for use by the livestock and poultry farmers, for example easy cleaning and handling, meeting the standard husbandry norms etc. (2) Availability – on the nearest accessible source and / or cheapest source. (3) Cost – on purchase or cost- benefit. (4) Durability – in comparison to items made of other materials like plastic, etc. Other challenges were technology adoption in local context, skill up-gradation of local bamboo craftsmen and to identify cluster where prototypes could be developed.

Consultation

A number of brainstorming sessions with different stakeholders including an e-discussion at UNSE-FNS community (<http://www.solutionexchange-un.net.in/en/Food-&-Nutrition-Security/introduction.html>) were organized to list out feasible ideas for improvement and to up scale the grass root level innovation. The e-discussion conducted highlighted other uses of bamboo e.g. as fodder besides number of challenges including that of the challenge of cleaning and disinfection of bamboo structures. Subsequently an action plan was drawn to further proceed towards remaining steps of the project.

The Survival phase: Prototype Development – Participatory Technology Development

Orientation workshop:

One cluster at Golaghat district of Assam was selected for first prototype (Prototype-I) development. Exposure to modern bamboo technology, validation of learning of situational analysis and consultation and introduction of grass root innovator was done in the orientation workshop. Grass root innovators shared ideas and processes undertaken during development of design with the participants. Grass root innovators, bamboo design experts, experts in animal husbandry practices and farmers interacted to evolve solutions in designing and adapting the bamboo items in husbandry practice (figure 4 and 5).



Fig 4: Innovator explaining his innovation



Fig 5: Design expert explaining the designs

Training on technology:

Hands on training on technology on bamboo treatment, joinery methods, use of tools was given to the participants (figure 6) and they could develop few selected prototypes using the knowledge gained.



Figure 6: Hands on training to the participants

After completion of the process of prototype-I development number of new challenges, like use of appropriate method for joineries, making the modular prototypes, treatment methods, use of right type of bamboo, requirement of skill up gradation, etc. emerged.

After completion of prototype-I, list of designs were selected for prototype-II development that were not included in the process of prototype-I development. These were

1. Layer cage
2. Brooder
3. Chick guard
4. Egg laying nest
5. Live bird carrying cage
6. Modular bamboo net for side walls of livestock and poultry shed.
7. Table egg carrying basket
8. Egg collecting basket
9. Egg carrying tray

Amongst these, prototypes of Layer cage, Bamboo brooder, chick guard, egg laying nest, live bird carrying cage and modular bamboo net were developed at cluster-II at Bezera, Kamrup District (fig 7).



Figure 7: Developed prototypes at cluster –II

After completion of the prototype development a number of product wise challenges are identified which are to be addressed during development of the final designs at Cane and Bamboo Technology Center (CBTC), Guwahati tool room.

Meanwhile during the process of prototype development skill up-gradation need of the craftsmen, need of institution building, adaptive capacity building of the cluster and listing of infrastructure / input requirement for adaptive capacity of the cluster are initiated (figure 8). Dialogue with the clusters for institution building has also been initiated and few craftsmen are already selected for handhold training at the workshop of Cane and Bamboo Technology Centre (CBTC), Guwahati. It is also proposed to develop final design at the workshop of CBTC with participation of the innovators and craftsmen involved in the process. After skill up-gradation of selected participants, attempts will be undertaken to provide common facility for the cluster.

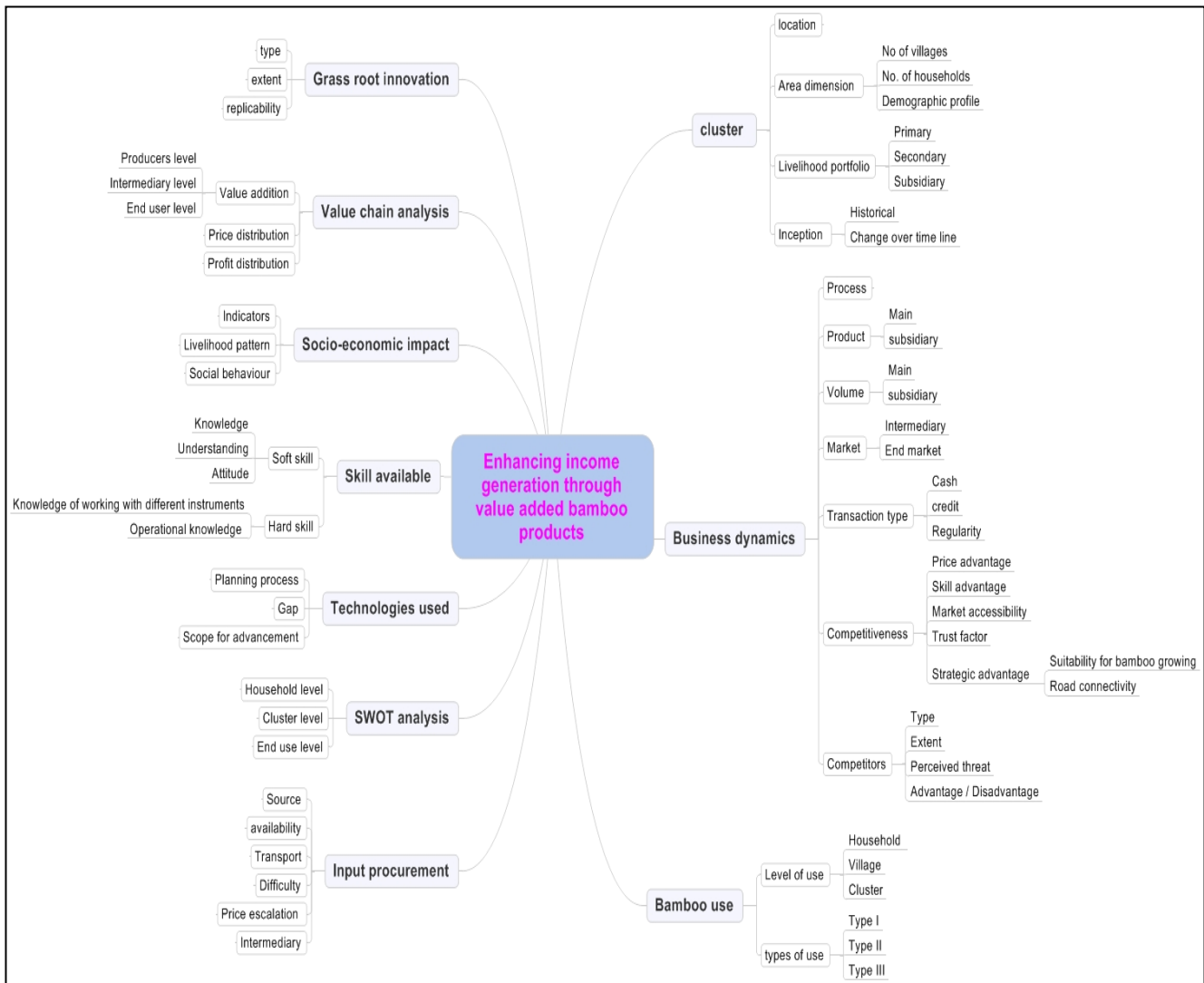


Figure 8. Plan map for cluster analysis developed by the project team.

Way forward under the survival phase

Field testing:

After development of the final design, field testing will be conducted on parameters of husbandry practices, suitability and acceptability etc.

Value comparison:

Value comparison of the developed design with that of conventional types shall be done in different levels where equipment manufacturers and large commercial farm holders will be involved.

Market acceptability and trend analysis:

Acceptability of the developed designs in the market and changing market scenario shall be examined and re modeling of the prototypes and plans shall be undertaken continuously.

Standardization

Based on the input of the above steps, design standardization shall be done to make it ready for mass production and commercialization.

Growth phase: Final product – Mass production technology:

After standardization of the products number of initiatives shall be undertaken for commercialization of the products. These initiatives include skill up-gradation of craftsmen, institution building in the cluster, adaptive capacity building of the cluster and providing common facility for the cluster.

Upon successful completion of these initiatives, marketing assistance to the cluster, ancillary enterprise development for full utilization of bamboo and supply side intervention to ensure uninterrupted supply of bamboo in the cluster shall be undertaken under Initiative-II.

Conclusion

The project is augmenting economic and community development within two identified clusters primarily by building capacity of the beneficiaries to face challenges listed below.

For Cluster-I Parts of Golaghat & Sibsagar District of Assam

Key Challenge that is being addressed:

- Effective Management of small scale layer farms raising genetically improved birds
----- Cage Vis a Vis Deep litter Method of rearing.
- Absence of appropriate farm equipment suppliers tailored to need of small layer / broiler farming units.
- Low Cash flow and market risk related challenges limiting investment on fixed assets.

For Cluster-II Village: Singimari, Bejera, Kamrup District Assam

Key Challenge that is being addressed:

- Quality improvement & Product line diversification for:
 - Addressing competition from printed paper boxes for carrying day-old-chick.
 - Full utilization of bamboo
 - --Risk mitigation and increased revenue
- Capacity to handle large demand (enhancing capacity for design, quality improvement and technology adoption for mass production)

References

Consolidated reply of e-discussion on 'Bamboo Usage in Livestock and Poultry – Experiences; referrals' at
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