Bounded to the Land and Sea: A systemic design approach to revitalising the Palmyra palm economy

Shankar, S, Nahar, Praveen and Thappa, Sahil

Relating Systems Thinking and Design
(RSD12) Symposium | October 6–20, 2023

Bounded to the Land and Sea: A systemic design approach to revitalising the Palmyra palm economy

S Shankar, Praveen Nahar, and Sahil Thappa

Interdependence among species plays a crucial role in sustaining life at a planetary scale. To advance a regenerative, inclusive global economy, it's imperative to integrate the socio-economic context, natural surroundings, collective wisdom, and technological advancements to facilitate envisioning equitable futures. From the outset, this project undertook an exploratory journey to delve into the intersection of traditional ecological knowledge and Open design within a social framework, uncovering possibilities at the crossroads of context, design, and technology.

The Palmyra palm economy in the villages of Tamil Nadu's Tuticorin district, India, served as the driving factor. With six crore palm trees, constituting 60% of India's total count, these trees have historically sustained local communities. However, contemporary challenges have raised doubts about its relevance, jeopardising the economic activities around the tree. This project aimed to construct alternative narratives surrounding the Palmyra economy—co-creating scenarios, envisioning potential future artefacts and interactions, resurfacing disappearing knowledge, and restructuring the ecosystem encompassing places, communities, knowledge, and infrastructure.

Continual stakeholder engagement, generative research, field studies, and participatory workshops unearthed challenges and concerns. These informed the crafting of intervention frameworks, generating product-process ideas, and effective resource management methodologies. Opportunities for innovation-led entrepreneurship prioritising regeneration, scalability, and sustainability were

identified to present fresh conversations and realistic possibilities for envisioning hopeful futures—fostering a revitalised sense of engagement among people, stakeholders, and the environment.

Overall, the project seeks to identify reinvention opportunities amid emerging needs. It proposes strategies and policies that empower resourcefulness and creativity—transcending contexts through adaptable frameworks tailored to distinct circumstances. By doing so, the project aims to foster innovation and address the evolving challenges different communities face.

KEYWORDS: forestry, distributed design, socioecological system, planet-centric design, regenerative design, social impact

RSD TOPIC(S): Policy & Governance, Society & Culture, Socioecological Design

---

Presentation summary

REFLECTIVE QUESTION: How do we speculate alternative futures and create narratives which are relevant to the cultural, social and geographical context, by designing with people?

This section presents the process, research methodologies, outcomes of this project and future prospects of a project of a similar nature.

Traditional ecological knowledges emerged from environmental understandings shaped over time by incremental learning (including trial and error and experimentation), and they cross-cut the scientific disciplines of biology, botany, geography, and cosmology (Augustine, 1997; Berkes, 2012). Indigenous knowledge is ingrained into the culture and exists largely in tacit form. It has, therefore, remained constrained within the community/ region (Nakata, 2002)

Open design movement involves the production of products, processes, and systems through publicly shared information. It extends the possibilities of reaching the masses, sustaining knowledge and making design and innovation more accessible through co-creation, collaboration, and participation from the users rather than an external independent stakeholder.

Combining indigenous knowledge with scientific knowledge can help create solutions that are culturally acceptable, economically feasible and environmentally sustainable for the society being aided (Puffer, 1995)

Through extensive primary research in the context of the palm ecosystem, it was understood that Traditional Ecological Knowledge, which encapsulates the collective wisdom gathered over ages, was facing challenges to its relevance, ultimately leading to its gradual fading away. In contrast, open design represents a promising avenue to foster greater openness and accessibility in knowledge sharing. Thus, the objective of this project was to investigate the convergence of these two realms within the Palmyra palm ecosystem, situated in the Tuticorin district of Tamil Nadu, India.

The context of the Palmyra palm ecosystem served as a compelling case study to empirically test this hypothesis. By examining it through diverse perspectives and lenses, we aimed to comprehensively understand its dynamics. The goal was to explore the potential possibilities that arise from this intersection and ultimately generate an actionable framework capable of creating impactful outcomes on a larger scale.

Palmyra palm: understanding the tree, ecosystem, and economy

In order to obtain a well-rounded understanding, the research delved into various aspects of the Palmyra palm tree, including its anatomy and morphology (Figure 1), the relationship between humans and nature, and its cultural significance, as well as exploring stories and poems associated with it. This comprehensive approach aimed to capture a holistic picture of the tree's significance.

Generative research was conducted with individuals directly involved with the Palmyra palm tree at both grassroots and institutional levels. These engagements unveiled the challenges faced by the community and shed light on the opportunities that exist within the Palmyra palm economy. By engaging with stakeholders at different levels, the research sought to gain valuable insights into the complexities and potential avenues for development and growth within this ecosystem (Figure 2).

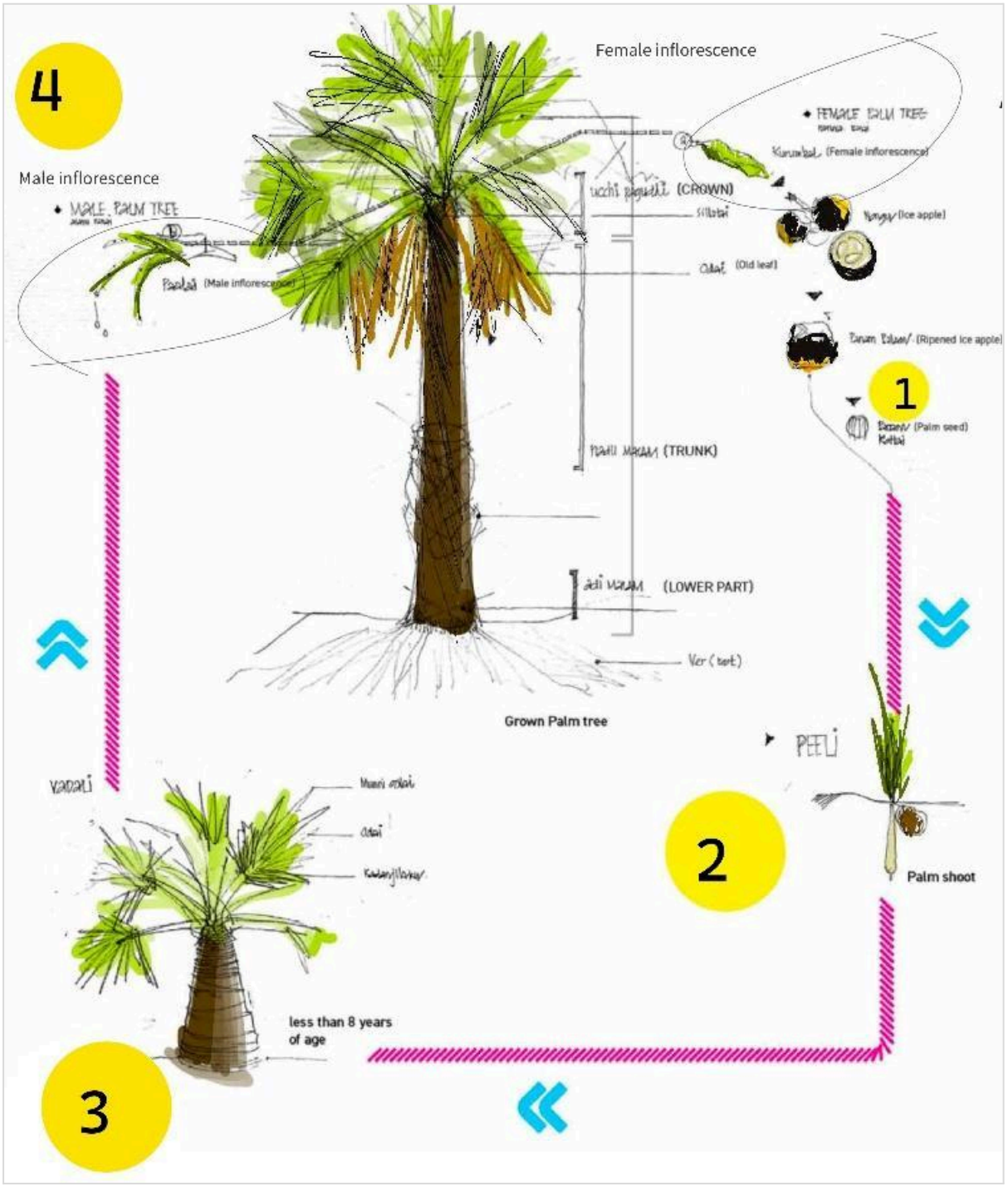

Figure 1. The growth cycle of the Palmyra palm tree

Mapping, synthesis and sensemaking

Stakeholder mapping, centred around the palm ecosystem, categorised stakeholders into primary, secondary, and tertiary groups. This exercise was instrumental in understanding the existing relationships, paving the way for identifying new interventions and fostering more effective and robust systems.

The physical mapping of problems, concerns, government initiatives, and key insights derived from the field research phase proved invaluable in achieving clarity and understanding patterns within the palm ecosystem (Figure 3). This approach facilitated the exploration of sub-systems, identification of opportunities, and organisation of data into distinct categories. The process further aided in the development of guiding principles and provided a structured framework for consuming information in an organised manner, as depicted in Figure 4.

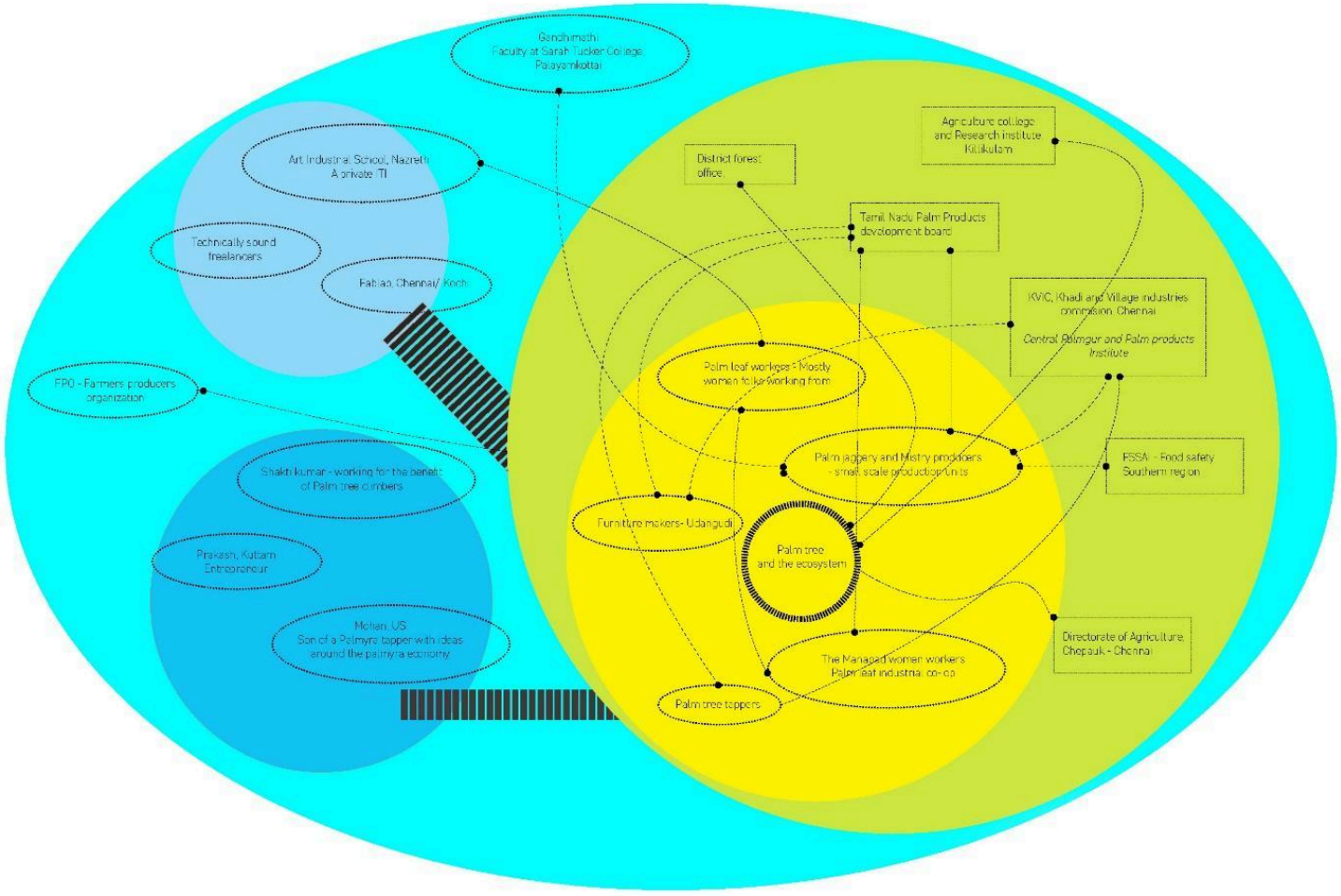

Figure 2. Stakeholder mapping

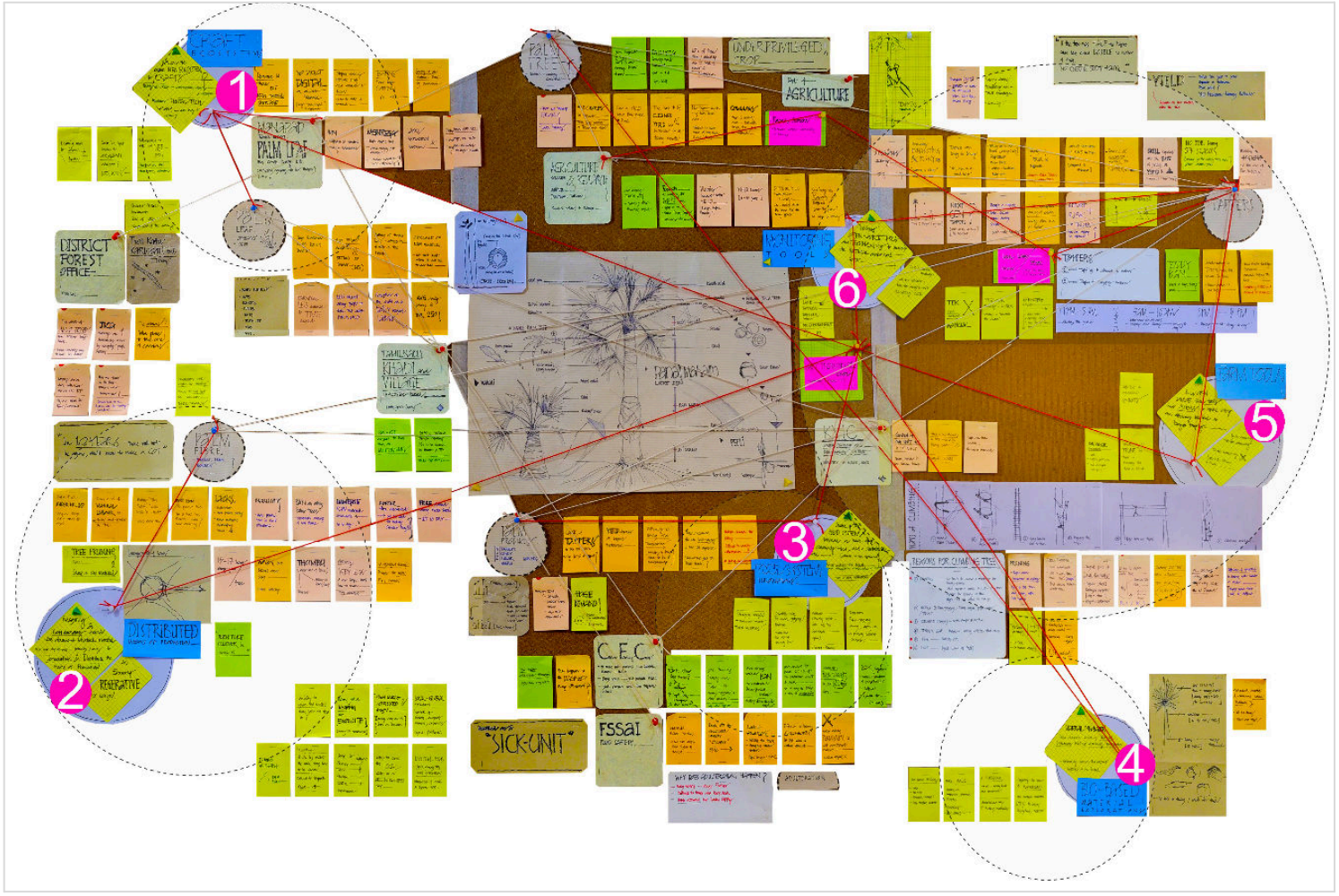

Figure 3. Physical mapping

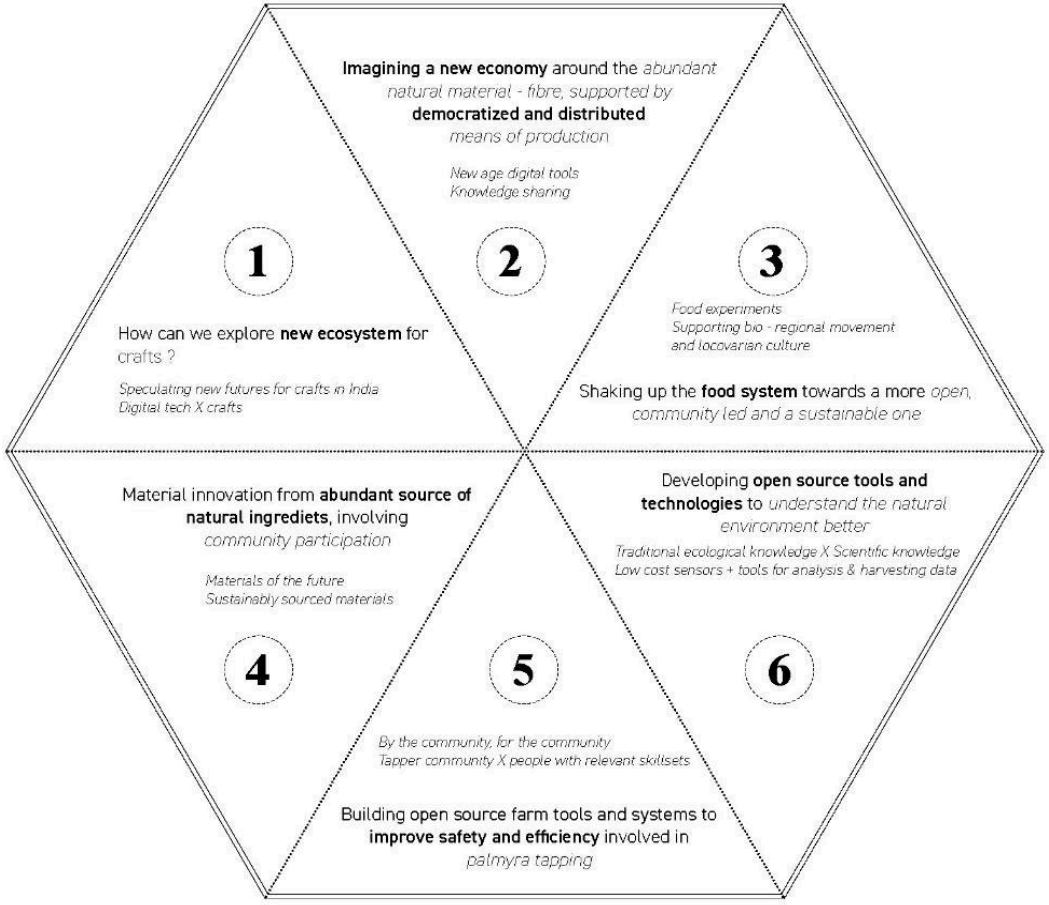

Figure 4. Design principles

Envisioning the future through participation and co-creation

Ideas of different scopes, encompassing various aspects of nature and employing diverse mediums, were cultivated through participatory design processes (Figure 7). Workshops, comprising segments dedicated to product and tool development as well as process enhancement, were organised to nurture the generation of ideas, promote shared comprehension, and encourage thorough analysis. These engaging workshops served as arenas for progressing and perfecting these concepts, fostering a collective and inclusive approach to problem-solving and innovation (Figure 5 and Figure 6).

The project outlined strategies for the creation of open-source tools and technologies to enhance our comprehension of the ecosystem. Furthermore, its objective encompassed the establishment of data-driven, sustainable business models. Here are some specific strategies put forth (Figure 8):

- Digitising Nature 2035: Implementation of a citizen-led digital tree tagging method to map the geolocation of trees, enabling the visualisation of scale and growth patterns.
- Precision Farming and Harvesting Data: Development of a framework to conduct long-term studies and research agendas for precision farming and harvesting practices.
- Rules for Common: Establishing rules and guidelines for the sustainable management of trees growing in common areas.

The Vision 2030 system map (Figure 9) envisions an approach that fosters the regeneration and sustainable utilisation of the rich palm ecosystem in alignment with government initiatives, with the goal of expediting the overall progress. When coupled with a collection of vision cards (Figure 10) presented below, this system map will function as a tool to streamline the map's expansion, thereby unlocking opportunities for deeper exploration and advancement.

Figure 5. Product and tool development workshop

Figure 6. Workshop to reaffirm and generate ideas


Palmyra
Vision cards
project
Palmyra

Figure 7. Tangible outcomes of the project

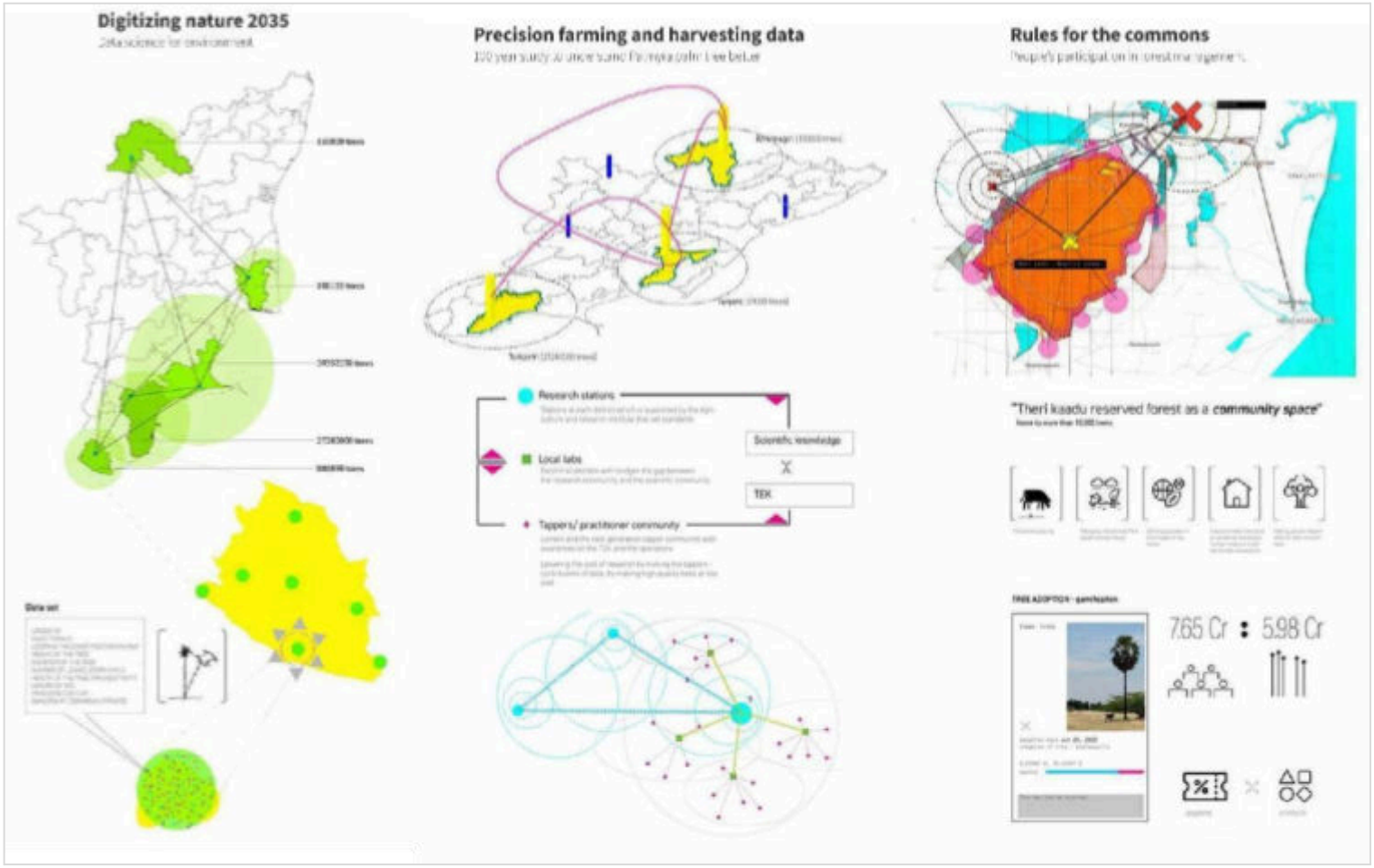

Figure 8. Strategies to understand the palm ecosystem

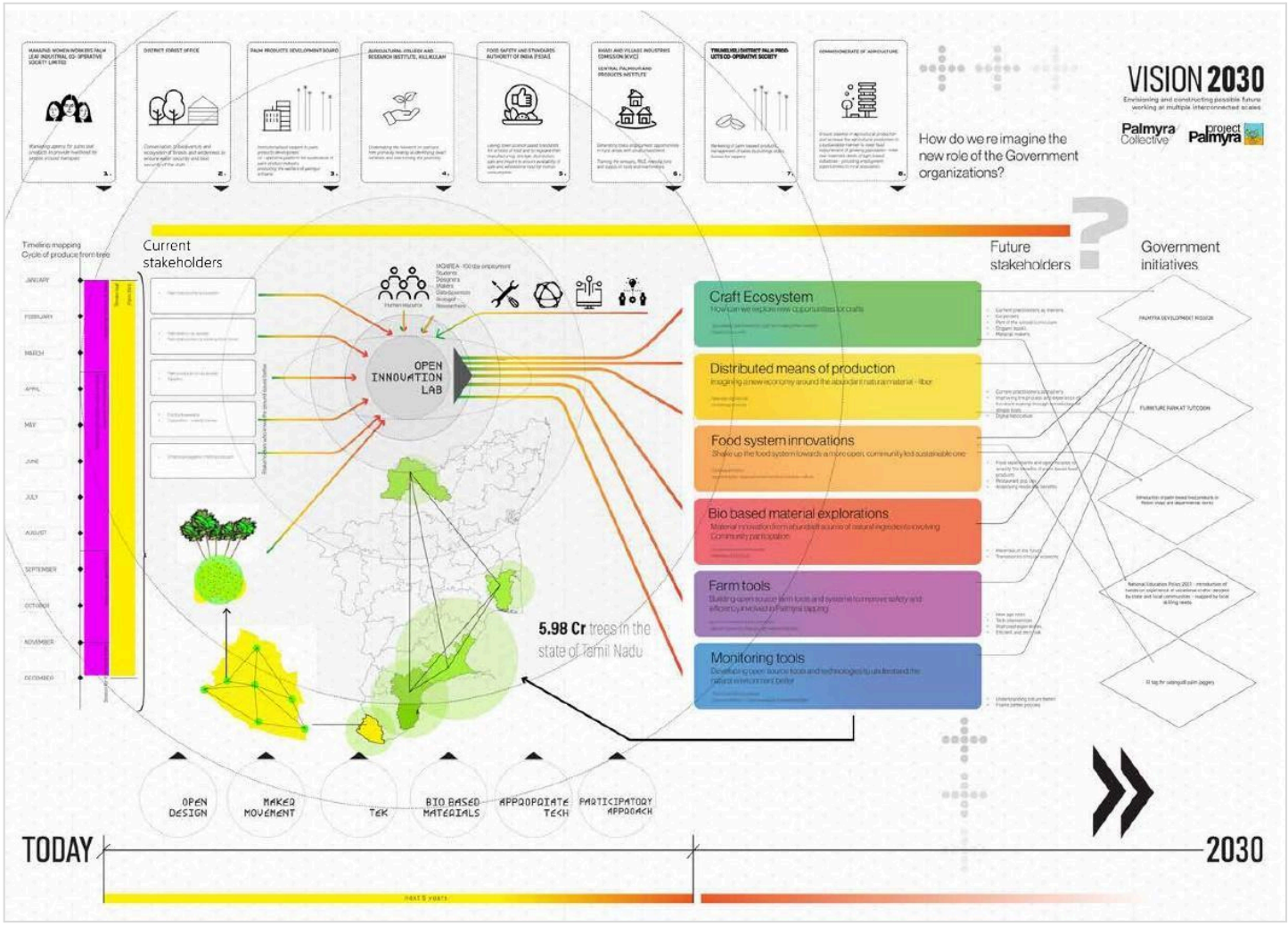

Figure 9. Vision 2030: System map

Figure 10. Vision cards

Future scope

The depicted vision for the future of the Palmyra palm ecosystem presents an innovative concept—a digitally powered innovation and cultural lab. This concept aims to empower the community by facilitating innovation and aligning their creations with global standards through the use of cutting-edge digital tools and global connectivity. The primary goal is to foster an innovation-oriented mindset within the community and harness technology as a catalyst for bridging the digital divide while promoting inclusivity. This adaptable framework holds promise for application in various contexts where communities face similar challenges (Figure 11).

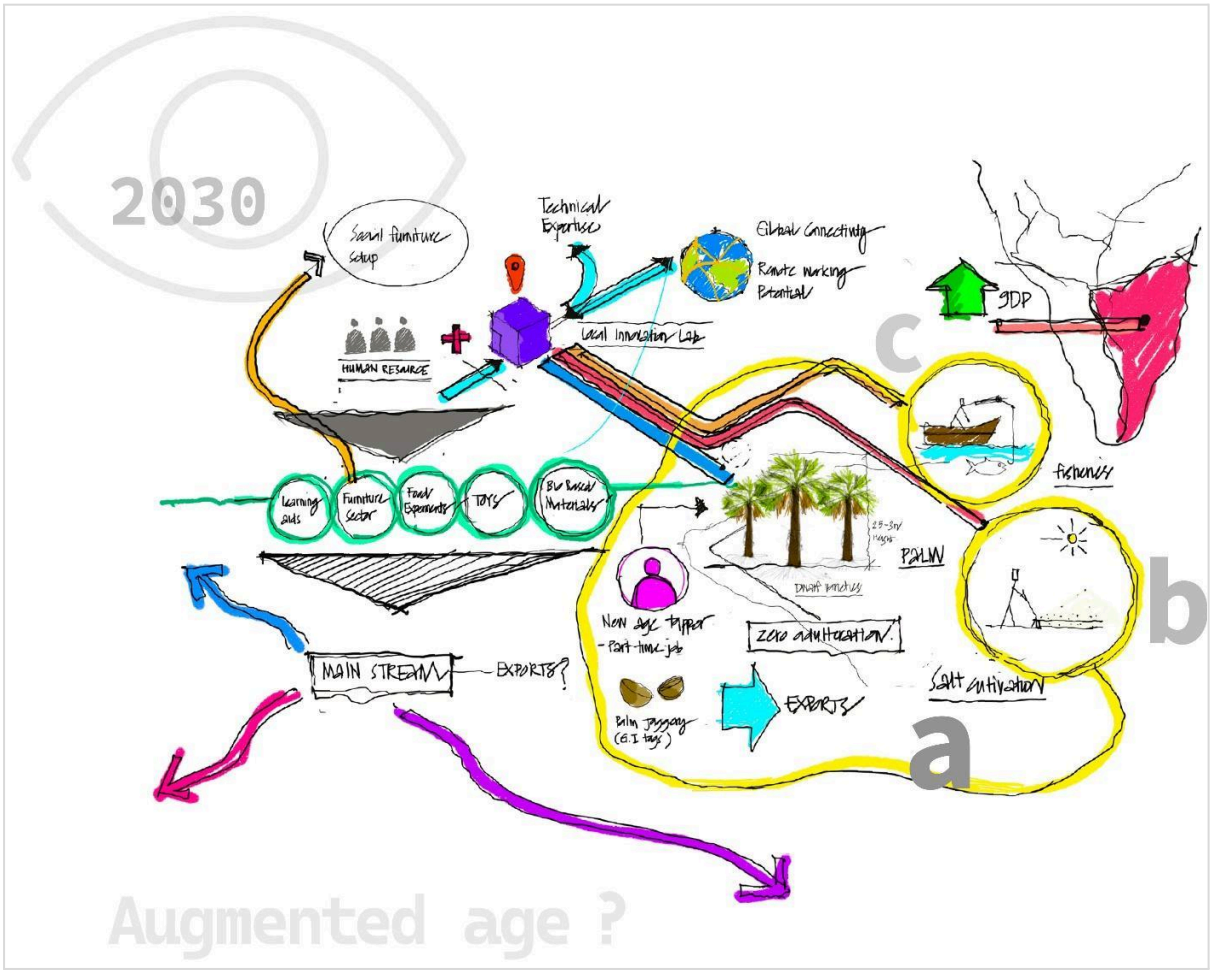

Figure 11. Palmyra palm ecosystem 2030

References

1. Puffer, P. (1995). The value of indigenous knowledge in development programs concerning Somali pastoralists and their camels.
2. Nakata, M. (2002). Indigenous knowledge and the cultural interface: underlying issues at the intersection of knowledge and information systems.
3. Augustine, S.J. (1997). Traditional Aboriginal Knowledge and Science Versus Occidental Science. Paper prepared for the Biodiversity Convention Office of Environment Canada.
4. Berkes, F. (2012). Sacred Ecology. New York, NY: Routledge Press
5. Diez, T. (2019). Understanding what it means to Design for Emergent Futures. Making Futures: 2020 International Research Conference

Authors

S Shankar, National Institute of Design, Ahmedabad, https://shankars.net/, shankars.gsn@gmail.com

Praveen Nahar, National Institute of Design, Ahmedabad https://www.nid.edu/people/detail/praveen-nahar, pnahar@nid.edu

Sahil Thappa, National Institute of Design, Ahmedabad, https://www.nid.edu/people/detail/sahil-thappa, sahil_t@nid.edu