

## Facilitating Rural Community Participation: Construction and Design of an Anganwadi Center in Ajjarkad, Udupi, India



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### Definition of terms and Introduction to Anganwadi Centers (AWCs)

“Anganwadi” means “courtyard shelter” in Indian languages. Anganwadi centers (AWCs) are mother and child development facilities for education and services in maternal health care and children’s early learning (Chhabra 2018). A typical Anganwadi center provides basic health care in Indian villages. Basic health-care activities include contraceptive counselling and supply, nutrition education and supplementation, as well as preschool activities. According to Nutrition and Health Education (NHED), India, and Ministry of Women and Child Development (MWCD), AWCs serve as preliminary village or habitation resource for health, nutrition, early learning, and cognitive development helping young and/or lactating mothers and children aged below 6 years shape their growth and future. Anganwadi centers

are regarded as the focal point for delivery of these services and are under the jurisdiction and governance of the Integrated Child Development Services (ICDS), a national scheme of the Government of India.

ICDS is one of the most important public programs in India reaching out to the most neglected sections of its people. The Directorate of ICDS provides a range of services addressing education, as well as health and nutrition needs of infant and young children below the age of 6 years. These take the form of supplementary nutrition, immunization, health checkups, referral services, preschool and non-formal education, and nutrition and health education. In addition, it implements schemes to curb the practice (described as “evil practices”) of child marriage (Integrated Child Development Services 2009). The perception of providing a package of services is based primarily on the consideration that the overall impact will be much larger if the different services are developed in an integrated manner as the efficacy of a particular service depends upon the support it receives from the related services. For better governance in the delivery of the scheme, convergence is a key feature of the ICDS scheme. This convergence is inbuilt in the scheme which provides a platform in the form of Anganwadi centers for provision of all services under the scheme (Integrated Child Development Services 2009).

The center is required to organize other activities related to different women’s programs, to provide a forum for youth activities, and to act

as a venue for meetings of frontline workers and for gatherings of mothers and children. In regard to the building design and construction of an Anganwadi center, it has been emphasized that, as far as practicable, AWCs should be built with community involvement and be of low-cost design using local materials and indigenous construction techniques (National Institute of Public Cooperation and Child Development) (Gopal 2006). Further, it should be owned and maintained by community/village panchayat/urban local bodies.

Construction of AWCs is undertaken across the country with support from the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA). Under the MNREGA, there is systematic planning in the exercise in some areas to ensure that the assets identified match the requirements of the local people. The process of intensive participatory planning exercise (IPPE) is undertaken by MGNREGA to involve youth as stakeholders in the rural areas for construction of AWCs; however this is not implemented consistently across all areas. Initially the program was intended to garner much local participation, through the employment of local women as Anganwadi Workers and helpers as volunteers with honoraria. This did not eventuate as planned, with users seeing Anganwadi centers as essentially government-provided services, but it was hoped, with the introduction of local self-government (Panchayati Raj Institutions) in 1992, that this would improve. A study in Kashmir in 2014 showed a low level of awareness of the ICDS services provided by Anganwadi centers (Shabanakhurshid 2014). A comprehensive report conducted by the National Institute of Public Cooperation and Child Development (NIPCCD) in 2006 based on a sample of 750 Anganwadi centers found there had been substantial reduction in the percentage of severely malnourished children and significant improvement in birthweight of babies. Uptake of immunization and other health services are still limited by ignorance and superstition (Gopal 2006). The hierarchy of the governance of Anganwadi is outlined below:

- ICDS: National-level central project monitoring unit, which consolidates and analyzes the data received from the states.
- State Level Body: State project monitoring unit, which sends consolidated data to ICDS.
- District Level: Consolidates and analyzes the data received from the blocks and sends it to the state bodies. Financial data is generated at this level.
- Project/Block Level: Is under the supervision of CDPO/ACDPO (Child Development Project Officer). Ensure the provisions of all logistical support for AWCs and coordinate with other departments for providing services.
- Supervisor: Generally supervises 20–25 Anganwadis and collects information from the workers of each center.
- Anganwadi Worker: Maintains the Anganwadi and reports to the supervisor.

Stakeholders of the Anganwadi are the community people, parents, and teachers, while the beneficiaries are children, adolescent girls, pregnant women, and lactating mothers.

As of 31 March 2015, 7072 projects and 1,346,186 AWCs were operational across 36 states/UTs, covering 102.2 million beneficiaries under supplementary nutrition (women and children) and 36.5 million 3–6-year-old children under preschool component (Integrated Child Development Services 2009). Whereas the 2011 census shows 158.8 million children in the age group 0–6 (Office of the Registrar General and Census Commissioner India 2011), independent research in 2012 showed the number of beneficiaries through Anganwadis had increased from 1,212,000 children aged 0–3 years and 1,222,000 children aged 3–6 years in 2001 to 1,775,881 and 1,603,856 children, respectively, in 2010. This covers 74.70% of children in the 0–3 age group and 67.90% of the 3–6 age group. Thus, there are still many children not provided with an AWC (Shashidhar et al. 2012). As per the information available on 31 March 2015 from 12.15 lakh (1,215,000) AWCs/mini-AWCs, about 81.19% AWCs are running from the pucca buildings (permanent well-engineered structures)

and the remaining 18.81% from kutchha buildings (temporary non-engineered structure made of nontraditional materials). Amongst those, 30.62% are running from government-owned buildings, 21.62% running from school premises, 4.54% running from panchayat buildings, 32.56% running from rented space including 5.90% from AWWs/AWHs house, 9.79% running from others, and 0.87% running from open space. 65.91% AWCs had drinking water facilities within the premises, and 50.01% AWCs had toilet facilities (Integrated Child Development Services 2009).

### **Collaborative and Participatory Research Methods**

Early in 2018, university collaboration between Australia, India, and Malaysia through a global student learning program known as intercultural dialogue through design or “iDiDe” (Ang 2017) facilitated community participation in a purpose-designed Anganwadi Center project proposed for Ajjarkad village located in Udupi, Karnataka. Based upon a brief background of the functioning and involved stakeholders and beneficiaries of AWCs, a design exercise of planning an Anganwadi collaboratively through iDiDe was initiated and worked out by the students, faculty, architects, and other allied professionals from three schools of architecture representing Manipal University Academy of Higher Education, India; Deakin University, Australia; and the International Islamic University, Malaysia, respectively. The project aimed to propose a resilient design to reconcile and reflect upon diverse cultural frameworks and negotiated dialogue through engagement with local community stakeholders (Ang et al. 2018). iDiDe adopted a community co-design approach and conducted research on design and construction approaches to identify different models of AWC. Under the collaborated guidance of faculty academic leaders from Deakin University School of Architecture of Built Environment, Manipal University Faculty of Architecture and the International Islamic University of Malaysia Kuliyah of Architecture and Environmental Design, undergraduate

architecture and built environment students from all three universities engaged with all levels of Ajjarkad community stakeholders and beneficiaries to understand the constraints and opportunities related to planning, design, and construction of the Ajjarkad Anganwadi Center project. As with previous iDiDe projects, the Ajjarkad Anganwadi Centre project was executed as a global mobility study tour model with structured immersive and authentic learning experience for students that focused upon sustainable rural community development in the built environment. It promoted multidisciplinary and integrated perspectives in sustainable design, ecosystems, cultural preservation, and rural community infrastructure development in the conceptualization (feasibility and design) and project development.

Context analysis, intercultural dialogue, interpersonal communication, and cross-cultural and multi-sectoral collaboration alongside supervised participation in community engagement activities were employed as action research techniques in the iDiDe design methodology. Findings from the 2018 iDiDe Anganwadi project in Ajjarkad provided the initial underpinning and justification for the research gap to be addressed in this entry. The first step in action research toward addressing this gap identified challenges and evaluated existing approaches in design and construction of Anganwadi centers in India. This was compared and synthesized with critical literature on theories of sustainable design. The aim was to identify how principles/philosophies might apply to improve sustainable design and construction methods of Anganwadi centers in India. A further research direction to this entry will identify whether an integral approach for sustainable design and construction of Anganwadi centers can improve community design outcomes and work to eradicate inequality in design and construction that impacts upon achieving optimal health and well-being of children’s early development.

## Models of Anganwadi Center Design and Construction

The Integrated Child Development Services (ICDS) scheme did not have provision for construction of AWC buildings as this was envisaged to be provided by the community except for the northeastern states. For them, financial support was provided for construction of AWC buildings since 2001–2002 at a unit cost of Rs. 175, 000 (approx. AUD \$3,400) (Chhabra 2018). As part of strengthening and restructuring the ICDS scheme, the government approved a provision of construction of 200,000 Anganwadi center buildings at a cost of Rs. 450,000 (approx. AUD \$8,800) per unit during XII Plan period in a phased manner with cost sharing ratio of 75:25 between center and states (other than the NER, where it will be at 90:10) (Integrated Child Development Services 2009). Further, construction of AWC has been notified as a permissible activity under Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA). The construction of AWC buildings can be taken up in convergence with MNREGA (Ministry of Rural Development 2015). Proposed infrastructure norms for AWCs, published by Ministry of Women & Children, specified building program criteria as follows (Bhawn 2011):

- Multipurpose room 7 m × 7 m
- Examination room 2 m × 3.05 m
- Counselling room 3.3 m × 2.7 m
- Kitchen/store 3.05 m × 3.7 m and 3.05 m × 1.5 m
- Toilets for children 2.3 m × 3 m
- Toilets for staff 1.2 m × 1.5 m

### The Anganwadi Project (TAP) Model

Manav Sadhna is a non-government organization based at Gandhi Ashram in Ahmedabad. Manav Sadhna is a registered trust in India and a non-profit organization in the USA. The organization comprised a young group of dedicated individuals working for the upliftment of poor and needy children (The Anganwadi Project 2013). TAP volunteers work closely with local community, who contribute to both the design process and

the construction of Anganwadis. TAP model of Anganwadis is constructed by local laborers and uses largely recycled materials in order to support the Manav Sadhna philosophy of “Re-Use, Re-Cycle, and Reduce.” Volunteers, with a majority being recruited from Australia through volunteerism, spend their initial few weeks (up to a few months) with the community, during which time, various designs and models are drawn up and constructed as a means of communicating and interpreting various design ideas. Once construction is underway, the volunteers are busy assisting and overseeing this process while involving the community (The Anganwadi Project 2013).

### Gram Panchayat-Led (Local Government) Model of Anganwadi

As per the report of a very comprehensive evaluation of Anganwadi centers in Kerala in 1997 by Kerala Research Programme on Local Level Development, the Kerala Centre for Development Studies surveyed 14 local self-government areas (Gram Panchayat). A number of workshops were reported to be held explaining the model and reporting of results of such Gram Panchayat-led improvements in Anganwadi construction and operation. As noted it was decided to construct a new building for the Anganwadi on land owned by the Gram Panchayat. Local government authorities were desirous of achieving cost-effective, child-friendly techniques in the construction work and approached renowned architect, Laurie Baker. Accordingly, Baker provided a beautiful plan for an Anganwadi building with a lot of free space and structures for playing, taking into consideration the needs for mental and physical development of small children. An estimate of Rs. 350,000 (approx. AUD \$6,800) was approved for a building with a plinth area of 1600 ft<sup>2</sup> (148 m<sup>2</sup>). A local-level beneficiary committee took up the responsibility for construction and accomplished it with the help of engineers and workers from COSTORD, a voluntary construction agency. Apart from the local people's representatives, Anganwadi teachers also worked as members of the construction committee. Owing to the perseverance of the construction agency and the beneficiary committee members, the structural

work except water and electricity connection was successfully completed and delivered for occupancy in 1998 (Seema 2001). A second successful Gram Panchayat-led model of Anganwadi was recorded in Vallikkunnu Panchayat in the Malappuram District of Kerala.

During the second year (1998–1999) of its introduction, two workshops were organized in the panchayat for Anganwadi teachers and people's representatives to discuss the projects related to the functioning of Anganwadis. A clear direction on the integration of the project activities in the areas of health, education, and women's development in the annual plan with the Anganwadi projects was agreed to be implemented as an improvement to the pilot projects. The panchayat decided to buy children's toys and distribute them to the Anganwadi centers. The panchayat took a resolution to develop all the Anganwadi centers into model Anganwadis. The condition of the Anganwadi centers in the coastal areas of the Vallikkunnu Panchayat with high population density was reported as deplorable for unclear reasons. The panchayat decided to construct new buildings for the centers or to shift them to unused government buildings such as a disused fishery school. This step helped in improving the quality of operations and functioning of these Anganwadis. The panchayat started providing supplementary nutritious diet consisting of milk, eggs, fruits, and pulses. Other projects taken up for implementation include supply of furniture for the Anganwadis and holding of awareness classes at mothers meet in the Anganwadis (Seema 2001).

The most important feature of the panchayat model has been the linking up of other activities in the panchayat with the Anganwadi functions. Medical examination and health awareness camps, continuing education programs for neo-literates, mobile library program in the field of women's development, bicycle training for girls, and other general awareness programs were sought to be organized in the Anganwadi centers, thus making the centers a common place of interaction of the local community. Under the moving library project, girls trained in cycle riding take books from the panchayat library and distribute them to women at the local Anganwadi centers.

This brings the local residents who are not direct beneficiaries of the Anganwadis also to the centers in borrowing of books who in turn develop interest in the functioning of the centers. In addition, the panchayat has taken up other projects like smokeless for Anganwadi, sanitation, and procurement of land for Anganwadis (Seema 2001). The costs of one of these Anganwadis are laid out with state government contribution Rs. 112,325 (approx. AUD \$2,200), panchayat contribution Rs. 167,675 (approx. AUD \$3300), and voluntary labor Rs. 20,000 (approx. AUD \$400) (Seema 2001).

### **Challenges in Design and Construction of Anganwadi Centers**

Anganwadi models implemented between the mid-1990s and 2000s showed evidence of limitations and constraints in design on operational aspects of Anganwadi centers by the national and state administrative organizations in India. The escalating and rapid rate of populace growth and requirements for Anganwadi facilities amplify a degree of enormity in the scale of challenges confronted by local bodies in setting up Anganwadi centers to meet the demand. Poor design and improper methods of procurement will lead to compromises on the health, well-being, and needs of the users in the Anganwadi centers. The design and construction challenges can be categorized mainly as government-decided needs and stakeholder-decided needs and addressed accordingly through the implementation of co-design or participatory design and the different kinds of participation for setting up and sustaining the Anganwadis with smooth functioning and maintenance.

#### **Government-Decided Needs Versus Stakeholder-Decided Needs**

According to Nutrition and Health Education (NHED), India, and Ministry of Women and Child Development (MWCD), Anganwadis were designed to serve as preliminary village or habitation resource for health, nutrition, early learning, and cognitive development helping them



shape their growth and future. The beneficiaries are children below 6 years, lactating mothers, and women between 15 and 44 years, taken care by Anganwadi workers (AWW), the most peripheral functionaries implementing the program services such as contraceptive counselling, neonatal and postnatal care, nutrition supplementation, vaccination, and non-formal pre-primary education at the community level, assisted by helpers (Kapil 2002). Hence it is challenging to provide an integrative framework with the consensus of different stakeholders to design Anganwadis to facilitate cooking, drinking water, maintaining hygiene, and other services mentioned above, in addition to improving monitoring and evaluation of the same (Kumar and Rai 2015). The Guidelines for Construction of Anganwadi Centers (AWCs) under MGNREGA in convergence with ICDS scheme of the Ministry of Women and Child Development (MWCD) 2015 stated that AWCs should be child-friendly with all relevant infrastructures and space that should be at least 600 ft<sup>2</sup> (56 m<sup>2</sup>). The objectives of this convergence were to ensure a pucca building to be provided for every AWC and fulfill the objectives of preschool, nutrition center, semiformal public health unit, and community center located in the heart of the settlements. Additionally, along with this, the other objectives of this convergence were to support generation of human and social capital at the micro level and create durable assets in the rural areas.

Das Gupta (Lokshin et al. 2005) stated that ICDS scheme has both implementation and design problems. With respect to the other main stakeholders, i.e., mothers of the AWCs children, Ritesh Dwivedi (Dwivedi and Nagda 2013) conducted a research to find the impact of Anganwadis on them, in which they expressed their happiness, satisfaction, and concerns regarding the same. Some of the concerns mentioned by them were need of strong security measures, safe and clean place, etc. The distance of AWCs from homes was a major concern which prevented the children from attending. The stakeholders felt that some of the AWCs had a lot of inside space in addition to the large and nice outside space for children to play, while some other AWCs had very

little and inadequate space both inside and outside. Some, although suitable during dry seasons, were a problem in the rainy seasons due to lack of space and leakages in the roofs. Another concerning situation encountered in the AWCs was the space inside was used for storage of fodder during monsoon in which case the fodder was piled up and the children sat next to it in the remaining space. This was an enormous hygiene and health hazard as insects and reptiles hide in the fodder and can bite children. Contextually, each place is different, and sometimes not many suitable options are available, for example, if located too close to a vehicular road, then suitable fencing should be set up to protect the children from harm when they play outside. The mothers also suggested some vocational courses for the older siblings.

The designs and specifications of AWCs were adhered loosely and sometimes veered away from the guidelines issued by MWCD from time to time. The local design variations, based on the geo-climatic conditions and construction materials, will also be instructed by MWCD. In this case, any other local bodies, such as Gram Panchayat or districts, can choose to construct an AWC and are permitted to modify specifications to suit their conditions. Such AWCs will be responsible by themselves for maintenance. Further, from the point of sustainability, only eco-friendly building techniques shall be used, and the use of steel and cement in pucca buildings would be reduced. All AWCs proposed for construction shall be part of the district plan approved by Gram Panchayat. Then an estimate is prepared with the given design to obtain technical sanction. Finally, the execution will be done by the project implementing agency decided by the state government, and construction will be monitored as per the guidelines. It is further ensured that the time given for one AWC is 11 months. Under MNREGA an amount of 5 lakhs (Rs. 500,000 approx. AUD \$9,700) is given for construction, and the rest will be borne by ICDS and other bodies. As per the guidelines, the AWCs are advised to use eco-friendly materials keeping in view their durability, local materials, and local practices with mud-based technology. The other

materials produced on-site by workers and techniques advisable for AWCs are mud blocks, renewable wood (casuarina), compressed and stabilized earth blocks, bamboo, filler blocks, micro energy roofing, funicular roofing, etc. The progress of construction would be checked by the district program coordinator (DPC) and the agency implementing ICDS scheme. Later the AWCs constructed by MNREGA will be subjected to social audit as per the regulations (Ministry of Rural Development 2015).

### Way Forward Through Co-design and Participatory Design

To overcome the issues and challenges of the government and stakeholders, a participatory or co-design approach towards better engagement with Anganwadi stakeholders plays an important role in the design and construction of AWCs. User participatory design or the co-design process supports clients and users in identifying, expressing, and developing their requirements for their future environment and preparing them for their new facilities for future challenges (Dalsgaard and Eriksson 2013). Involving end users has become essential in design research (Sanders 2008) since they are becoming more demanding in terms of the quality, performance, and functionality of their buildings (Emmitt and Ruikar 2013). Sanders and Stappers (2008) stated that a user-centered approach alone is not enough to solve the complex challenges of design today. Hence a more collaborative approach is necessary (Emmitt and Ruikar 2013; Cuff 1992), not just in small groups of experts but to a larger context including society and end users (Scariot et al. 2012). As indicated by Yankee Lee (2008), there are gaps between scientific design research by “outsiders” and creative design practice by “insiders” because of a lack of collaboration between the two groups in design. This challenge indicates that user research could become more creative for all stakeholders including users if there is more professional designer involvement. Hence user participation in design might require design paralogy rather than innovation (Lyotard

and Lyotard 1984). Co-design is about engaging the residents without any agenda but just observing their needs, after which a mutual trust relationship could be developed between the collaborators, social workers, and resident group members. The different roles that design professionals play in generating participatory professionalism with due consideration to social hierarchy are design developers working with design community to transfer design processes for participation; design facilitators designing with people to transfer design knowledge to emancipate people to improve their lives; and design generators collaborating with professionals to explore design thinking to different implications. However, identifying and applying methods that ensure local interpretations of participation and enable participants to appropriate the design process poses challenges (Tacchi and Watkins 2007). To localize participation, it is required to develop “sensitivity toward new types of network relations among people, the diverse motivations of people to participate, the subtle balance of values and benefits involved in collaborative endeavours, and the inherent power relations between participants” (Brereton and Buur 2008). Facilitating participation is about contributing to an environment, where interactions can influence design. To ensure appropriate participation, it is required to observe, reflect on, and respond to local values since every design situation presents unique flavors of participants’ identities, viewpoints, agendas, and roles within their community (Winschiers-Theophilus et al. 2012).

Community participation is fundamental for best results (Wright et al. 2009). As indicated by Valladares (2013) when community and users are involved in design and construction, there is the opportunity to address their socioeconomic, culture, and psychosocial aspects in design which ultimately adds to their health and well-being. Community participation emphasizes the involvement of local people in social and physical development of the environment they are living in (Sanoff 2009).

Co-design tactics build a strong sense of belonging, acceptance, and spirit in the

community and create real sustainable change, not only for the children but for their families and communities. Community engagement projects flourish when the design is kept simple, thus allowing space and energy for ideas to enhance in the usage of the space as in Anganwadi. Being open and engaged with stakeholders, the teachers and the community allows AWC to be transparent and inclusive and the community feel ownership of the space. Hence, single design does not fit all scenarios; it will vary depending on the user needs. There are many different participation types for the users and community to partake in the co-design process, and some of the relevant ones are discussed below.

### Various Types of Participation

The participatory approaches in design situations range from simple private client commissions to civic education program of environmental issues and intensive community involvement of architectural development (Lee 2008). One of the important points mentioned above is the social hierarchy, which has to be maintained among both government and non-government stakeholders and arrange the different groups of participations in the co-design process. Multimodal types of participation in the user participatory design have been identified to exist. The three modes as put forth by Lee (2006) are public participation (PP) in abstract space (the realm where designers and experts work), community participation (CP) in concrete space (the realm where people live), and design participation (DP) across the overlap space of the realm of collaboration. Lee (2008) devised the design participation tools based on 3P process accordingly:

- Preference stage (P1) – participants are invited to express their preference through specially designed tools.
- Planning stage (P2) – collective brief and self-study exercise to help the participant to define their design brief.
- Processing stage (P3) – transfers abstract design tools to people-engaged games to let participants experience hands-on design.

Design participation was conducted by organizing awareness workshops for each stage. Non-planned, community-driven activities were deemed equally important in the overall design exercise, complementing ethnography (Bidwell et al. 2011). Facilitator approach uses participatory methods for problem definition and design solution generation through design assistance techniques (Shirvani 1985). Design dialogue is a framework that functions as support to formulation of customer requirements and provides a tool for a wide group of stakeholders to discuss and develop their future environment (Dalsgaard and Eriksson 2013). Formation of multidisciplinary teams to ensure planning, development, and implementation of child-friendly spaces is holistic and harmonizes educational, social, cultural, economic, technological, safety, health, and environmental aspects (Wright et al. 2009). Apart from the above, design charrettes can be organized to create an innovative atmosphere in which a diverse group of stakeholders can collaborate to generate visions for the future.

### Discussion

The efforts of the iDiDe consortium made up of three universities from Australia, India, and Malaysia represent a united international-level of interest in the facilitation and achievement of health and well-being for women and children in India. The hands-on experience from iDiDe 2018 Ajjarkad Udupi, India, illustrated a design perspective that ensured vital end user input in the form of stakeholder community engagement from the outset. Despite national-level significance and the large numbers of Anganwadi centers to date, there are relatively few peer-reviewed literature and research published in public domains which are readily available to the interest of international audiences. Majority of the research local to India were found to be in organizational report formats, and research related to Anganwadi design evaluations have yet to be identified. The literature on the value of involving community in the early stages of design and throughout the construction and occupancy phases is emergent from



international researchers. The literature review findings showed evidence of Anganwadi centers needing to reconcile between differing agendas of government and stakeholders. The review of literature further identified the recent work of DeKay and Bennett (2011) who presented a convincing case for how Integral Sustainable Design (ISD) theory may be applied to designing for holistic sustainability. ISD presented an intellectual framework of enquiry which simultaneously includes and excludes differences by performing cross-cultural comparison of human experience, systems, and performance which can be effectively used in any discipline to demonstrate a holistic view of its particular context (Esbjörn-Hargens 2010). Roetzel et al. (2017) affirm that sustainable design must be informed by the building's relationships and behavior with nature as well as people's experience and interpretation of nature through the building. There were complex considerations attached to the design of Anganwadi related to social and cultural considerations of location and specificity of rural contexts. There are nuances in the design considerations that reinforce children's self-identity and a sense of belonging rather than a standardized approach as expected by the government, which may lead to detachment and alienation of the community with the Anganwadis. The challenges lie in negotiating and synthesizing competing demands of the government while honoring the integrity of the project brief, context, limited budget, climate, language, and culture. The limited and restricted resources from the government further restricts design of space for effective use and incorporating proper ventilation, natural light, security, and hygiene. Another pressing issue on the government is retaining children and encouraging the lactating mothers and pregnant women of the rural community in using Anganwadis. However, designing a friendly and a homely environment in the Anganwadis through flexible spaces and elements could create an inviting atmosphere and decrease the above-stated problem.

## Conclusion

The entry highlighted the challenges of Anganwadis in India and situated it in the context of a sustainable development challenge to counteract inequalities in health and well-being. It offered action research methods to explore and evaluate design as integral to sustainable development. Interventional initiatives such as the iDiDe experience have shown that a balanced and objective approach to the disparate agendas of government and stakeholder is achievable and can contribute to the improvement of rural community conditions. The role of universities as objective agencies in facilitating the needs of rural community, through the iDiDe platform, provided context to the design approach of an Anganwadi center only and has not been discussed here. Evaluation of iDiDe outcomes from a sustainable design education perspective and benefits to student learning are excluded from this entry. The poignant responses expressed anecdotally by Anganwadi mothers in Ajjarkad affirm that iDiDe co-community participatory design approaches are unprecedented in this rural context and echo loudly the need for more community empowerment interventions such as iDiDe.

No one has ever asked us before . . . (what we want or what we need)

We did not know this (co-design approach) existed

Future research direction will explore empirical data related to integrated and multi-sectoral approaches in community design of Anganwadi and its impacts upon community health and well-being. It will further seek to test applicability of integral design theory identified in the literature as a possible framework for developing more refined co-design processes for the improvement of rural community outcomes.

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