



Facilitating rural community participation in the design of an Anganwadi centre in Ajjarkad, Udupi, India

This is a post-peer-review, pre-copyedit version of a paper published in *Reduced Inequalities*:

Ang, Susan, Devi, Rama Devi and Karunasena, Gayani 2019, Facilitating rural community participation in the design of an Anganwadi centre in Ajjarkad, Udupi, India. In Leah Filho, W (ed), *Reduced Inequalities*, Springer, Cham, Switzerland, pp.493-509, doi: 10.1007/978-3-319-71060-0_35-1.

The final authenticated version is available online at: https://doi.org/10.1007/978-3-319-71060-0_35-1

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Entry title – “Facilitating rural community participation in the design of an Anganwadi centre in Ajjarkad, Udupi, India

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Abstract

This chapter is about the design and construction of Anganwadi Centres and the role they play in promoting health and well-being amongst mothers and children in rural communities in India. In 1975, Anganwadi Centres were introduced as a national public health service initiative to combat child hunger and malnutrition. They are integral to the Integrated Child Development Services (ICDS) programme set up to elevate education, health and nutrition of mothers and children amongst India’s underprivileged communities. Early in 2018, collaboration between universities in Australia, India and Malaysia and the office of the Deputy Director of Women and Child Welfare, Udupi District was undertaken for the proposed development of a purpose designed centre located in Ajjarkad, Udupi, India. The project was effected through a student global learning program known as iDiDe (Intercultural dialogue through design). The rural community design experience raised questions surrounding how the goals of Anganwadi Centres (AWCs) were being met. Findings supported the value of purpose-built design and construction with community engagement as it enabled wider participation and ownership amongst community stakeholders. It revealed specific challenges which impact upon the right to health and well-being. The chapter posits further research in developing a rural community design framework that addresses these specific challenges to meet the goals of the ICDS.

Key words: Anganwadi Centre (AWC), rural mothers and children, rural community design, right to health and well-being, iDiDe, University collaboration, participatory design methods

1. Introduction to Anganwadi Centres (AWCs)

“Anganwadi” means "courtyard shelter" in Indian languages. Anganwadi Centres (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 centre provides basic health care in Indian villages. Basic health-care activities include contraceptive counselling and supply, nutrition education and supplementation, as well as pre-school activities. According to Nutrition and Health Education, India (NHED) 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 them shape their growth and future. Anganwadi Centres 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 programmes 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 children below the age of six years. These take the form of supplementary nutrition, immunisation, health check-ups, referral services, pre-school and non-formal education, 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 develop 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 in-built in the Scheme which provides a platform in the form of Anganwadi Centres for provision of all services under the Scheme. (Integrated Child Development Services 2009).

The centre is required to organise other activities related to different women’s programmes, to provide a forum for youth activities, 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 Centre, it has been emphasised that as far as practicable, that 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 are 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, with users seeing Anganwadi centres 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 centres (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 centres found there has been substantial reduction in percentage of severely malnourished children and significant improvement in birthweight of babies. Uptake of immunisation and other health services are still limited by ignorance and superstition (Gopal 2006). The hierarchy of the governance of Anganwadi are outlined below:

- ICDS: National level central project monitoring Unit, which consolidates and analyses the data received from the states.
- State Level Body: State project monitoring Unit, sends consolidated data to ICDS.
- District Level: Consolidates and analyses 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 coordinates with other departments for providing services.
- Supervisor: Generally supervises 20 to 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 on 31st 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 years children under pre-school component (Integrated Child Development Services 2009). Whereas the 2011 Census shows 158.8 million children in the age group 0-6 (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 a remaining 18.81% from kutcha buildings (temporary non-engineered structure made of non-traditional materials). Among those 30.62% 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; 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).

2. Collaborative and participatory research methods

Early in 2018, university collaboration between Australia, India and Malaysia through a student global learning program known as Intercultural dialogue through design or “iDiDe” (Ang 2017) facilitated community participation in a purpose designed Anganwadi Centre 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 Academy of Higher Education, India, Deakin University, Australia and 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 guidance of university academic leaders, undergraduate architecture and built environment students 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 Centre project. iDiDe operates a global mobility study tour model with structured immersive learning that focuses upon sustainable rural community development in built environment. It promotes multidisciplinary and integrated perspectives in sustainable design, eco-systems, cultural preservation, and rural community infrastructure development in the conceptualisation (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 Chapter. The first step in action research towards addressing this gap identified challenges and evaluated existing approaches in design and construction of Anganwadi Centres in India. This was compared and synthesised 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 Centres in India. A further research direction to this chapter will identify whether an integral approach for sustainable design and construction of Anganwadi centres 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.

3. Models of Anganwadi Centre 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 North Eastern States. For them, financial support was provided for construction of AWC buildings since 2001-02 at a unit cost of Rs.175, 000 (Approx. AUD \$3,400) (Chhabra 2018). As part of the strengthening and restructuring the ICDS Scheme, the government approved a

provision of construction of 200,000 Anganwadi centre 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 centre 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 (Development et al. 2015). Proposed Infrastructure Norms or AWCs, published by Ministry of Women & Children, specified building program criteria as follows (Bhawn 2011):

- Multipurpose Room 7m x 7m
- Examination Room 2m x 3.05m
- Counseling Room 3.3m x 2.7m
- Kitchen/Store 3.05m x 3.7m & 3.05m x 1.5m
- Toilets for children 2.3m x 3m
- Toilets for staff 1.2m x 1.5m

The Anganwadi Project (TAP) model

Manav Sadhna, is a Non-Government Organisation based at Gandhi Ashram in Ahmedabad. Manav Sadhna is a registered trust in India and a non-profit in the USA. The organisation is comprised of 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 are constructed by local labourers and use largely re-cycled 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 centres 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 square feet (148m²). 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 were 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 organised 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 centres. The panchayat took a resolution to develop all the Anganwadi centres into model Anganwadis. The condition of the Anganwadi centres in the coastal areas of the Vallikkunnu panchayat with high population density were reported as deplorable for reasons unclear. The panchayat decided to construct new buildings for the centres 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 programmes for neo-literates, mobile library programme in the field of women's development, bicycle training for girls and other general awareness programmes were sought to be organised in the Anganwadi centres, thus making the centres 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 centres. This brings the local residents who are not direct beneficiaries of the Anganwadis also to the centres for borrowing of books who in turn develop interest in the functioning of the centres. 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 is laid out with State Government contribution Rs. 112,325 (Approx. AUD \$2,200), Panchayat contribution Rs. 167,675 (Approx. AUD \$3300) and voluntary labour Rs. 20,000 (Approx. AUD \$400) (Seema 2001).

4. Challenges in design and construction of Anganwadi centres

Anganwadi models implemented between mid 90s –2000s showed evidence of limitations and constraints in design on operational aspects of Anganwadi Centres by the National and State administrative organizations in India. This 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 centres 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 centres. 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, India (NHED) 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 to 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 frame-work with the consensus of different stakeholders to design Anganwadis to facilitate cooking, drinking water, maintaining hygiene and other services mentioned above, in addition to improve monitoring and evaluation of the same (Kumar and Rai 2015). The Guidelines for Construction of Anganwadi Centres (AWCs) under MGNREGA in Convergence with ICDS Scheme of Ministry of Women and Child Development (MWCD), 2015 stated that AWCs should be child friendly with all relevant infrastructure and space should be at least 600 sq. ft (56m²). The objectives of this convergence was to ensure a pucca building to be provided for every AWC and fulfil the objectives of pre-school, nutrition centre, semi-formal public health unit and community centre located in the heart of the settlements. Additionally, along with this, the other objectives of this convergence was 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 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 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 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 (Development et al. 2015).

5. Way forward through Co-Design and Participatory design

To overcome the issues and challenges of the Government and stakeholders a participatory or co-design 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 (Sanders and Stappers 2008) stated that a user-centred 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) (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 flavours 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 (Valladares 2013) that when community and users are involved in design and

construction we address their socio economic, 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 programme 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. Multi-modal 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 (Lee 2008) devised the Design participation tools based on 3P process and 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)- transfer 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, 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 are holistic and harmonize 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.

6. Discussion

The efforts of the iDiDe consortium made up of three universities from Australia, India and Malaysia represents 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 centres 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 organisational 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 are emergent from international researchers. The literature review findings showed evidence of Anganwadi centres needing to reconcile between differing agendas of government versus stakeholders. The review of literature further identified the recent work of DeKay and Bennet (DeKay and Bennett 2011) who presented a convincing case for how Integral Sustainable Design (ISD) theory can 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 behaviour with nature as well as people's experience and interpretation of nature through the building. There were complex considerations attached to 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 many competing demands of the Government, whilst honouring 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.

7. Conclusion

The chapter 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 a balanced and objective approach to the disparate agendas of government and stakeholder are 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 Centre 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 chapter. The poignant responses expressed anecdotally by Anganwadi mothers in Ajjarkad affirms that iDiDe co-community participatory design approaches are unprecedented in this rural context.

“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 wellbeing. 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.

Acknowledgement

The cooperation received for this design research project from the Deputy Director of the Office of Women and Child Welfare and the Anganwadi community in the district of Ajjarkad, Udupi are acknowledged and very much appreciated.

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