OPPORTUNITIES FOR SOCIAL SERVICES' DEVELOPMENT

پائیدار
PAIDAR

Poverty Alleviation and Inclusive Development Across Rural Sind

CONTENT

EXECUTIVE SUMMARY

Among the various aspects of poverty, limited access to social services plays a critical role. This understanding shapes part of the Government of Sindh's (GoS) Poverty Reduction Strategy (PRS) and subsequently, the program 'Poverty Alleviation and Inclusive Development Across Rural Sindh' (PAIDAR), which has a specific focus on enhancing "availability and accessibility of social services and infrastructure in Rural Sindh".

This report details how PAIDAR can be effectively implemented in the domain of 'social services and infrastructure'. It proposes an operationalization process and identifies potential interventions.

The report encompasses the following services: water and sanitation, energy, waste management, healthcare, education, housing, transportation, communication, public safety, and financial services. Services have some key features: they are influenced by contextual and cultural factors; their effectiveness relies on the presence and functioning of three elements - people (eg. staff, private entrepreneurs), hardware (eg. infrastructure, machinery, spare parts) and consumables (eg. chlorine, fuel) – and the consideration of users' behaviour; equitable access is crucial for any services; services should be resilient to potential hazards they may face.

PAIDAR focuses on five out of twenty-nine districts in Sindh: Thatta, Sujawal, Badin, Tharparkar, and Larkana. In these rural areas, the contextual analysis has identified twelve 'key challenges' and highlighted the coexistence of two kinds of settlements: towns and villages. Among towns, few of them have been selected as Rural Growth Centers (RGCs), because of their location within a cluster of villages. This peculiarity allows public services in RGCs to serve both RGCs themselves and the surrounding villages: this is why the government directs its service investments towards RGCs.

Given the distinct nature of towns (including RGCs) and villages, further analysis of these typologies has been done. Towns host low-rise buildings and includes markets and services with a broader coverage. The visited services revealed some challenges in operation and maintenance, resulting in malfunctions or stoppages. The visit to the first RGC starting to implement its public service projects (Chuhar Jamali), showed mixed results for the quality control of the construction sites. Villages, on the other hand, are smaller and have varying levels of proximity to towns, often with inadequate services and experience in working with NGOs and support agencies.

The proposed process for PAIDAR is as follows:

1. DEFINE what can be done (and what cannot be done) and DO it: prioritize challenges, tackle communities in a holistic way, find positive intersections between two PAIDAR outcomes (services and business), find complementarities with other governmental and nongovernmental stakeholders;
2. ENGAGE with the communities during the *entire* process, to make better projects for more satisfied communities;
3. LEAD by example, highlighting solutions which are innovative and sustainable;
4. SCALE UP programme ambitions, by sharing "good practices", looking for partners, and advocate for targets out of PAIDAR reach.

Given the extensive geographical coverage and complexity of the program, PAIDAR requires a Geographic Information System (GIS) and a clear governance. Prioritization of interventions is also essential. Six out of the twelve already mentioned 'key challenges' were prioritized as *core*: Education/Human Capital, Health/Healthcare, Food/Nutrition, Water/Sanitation, Solid Waste Management, and Housing/Shelter. The remaining challenges were considered *barriers*, ie. challenges slightly less significant than the core ones.

PAIDAR presents several opportunities based on the typology and situation of different settlements (towns vs. villages), and the wide range of services. Specifically, the report suggests the following:

- For towns:
    - Define the *full* picture: where are the towns (how they are distributed in the district, which are their needs, and which services with broad coverage they host), which are the RGCs and what projects will be implemented there.
    - Ensure quality control in construction sites and plan operation and maintenance during the services' entire lifespan.
    - Consider services which are often neglected – such as sanitation and solid waste management – and design the public space.

- For villages:
    - Work simultaneously at many services, starting by addressing the core challenges.
    - Emphasize the importance of projects' acceptance and ownership.
    - Carefully consider to strengthen villagers' security of land and house tenure.
    - Collaborate with other stakeholders already involved in the villages.
    - Address the lack of proximity (from markets and from services with broad coverage) by exploring ways to make villages closer to each other and to towns.
    - Understand the boundaries between private and communal, in order to explore communal use of services.
    - Focus on improving communal space.

- For services:
    - Understand features, barriers, and needs to enhance the effectiveness of existing services or, if services are not existent, to create them. Consider aspects such as: people, hardware, and consumables; users' behaviour; services' ownership; operation and maintenance; equitable access; social, economic and environmental impact; resilience to hazards.
    - Technical solutions should be integrated with all these elements above, otherwise they are unlikely to function and last.
    - The report presents and discussed few specific solutions for:
        - Services directly related to the core challenges: water and sanitation services (including hygiene promotion and vector control), solid waste management services, healthcare services, education services and lifelong learning opportunities, and housing services.
        - Services directly related to the barriers: energy services, transportation services, communications services, and public safety services.
        - Public and communal space, as an important chance which is often forgotten.

INTRODUCTION

Poverty is a human condition with multiple faces, among which lack of money is usually just one part of the story. The whole story shows that poverty prevents to enjoy a life where all basic needs are fulfilled, becoming a trap hard to escape, a vicious circle generating other collateral issues. People in poverty struggle to get out of it, so their children, and so their grandchildren. In many areas of Pakistan, poverty is an issue that governmental and non-governmental stakeholders decided to tackle and *reduce*.

The report in your hands is about *poverty reduction* and, in particular, it is about 'Poverty Alleviation and Inclusive Development Across Rural Sindh' (PAIDAR), a programme funded by the European Union (EU) and developed by the United Nations Industrial Development Organization (UNIDO), together with the Government of Sindh (GoS).

PAIDAR builds upon the Poverty Reduction Strategy (PRS) developed by the GoS with technical assistance by EU. For its implementation, PRS relies on three *inter-related* sub-strategies: Rural Growth Centres (RGC), Urban Economic Cluster (UEC), and Community Driven Local Development. RGCs are small towns located within a cluster of villages, where public investments in services could create positive synergies for the benefit of the surrounding villages; UEC are groups of business and network of enterprises whose interactions and development can boost economic growth and employment; Community Driven Local development is the approach enabling communities to be a driving forces of their own inclusive development.

Based on the articulation made by the PRS, PAIDAR has two outcome-related components: the first is about availability and accessibility of social services and infrastructure in Rural Sindh while the second is about business opportunity in the Urban Economic Clusters (UEC). PAIDAR targets five of twenty-nine Sindh's districts: Thatta, Sujawal, Badin, Therparkar and Larkana. These districts experience high levels of deprivation, according to the Multidimensional Poverty Index (MPI), based on data captured by the Pakistan Social and Living Standards Measurement Service (PSLM) conducted during 2019-20.

Adopted on Sep 29th, 2020, PAIDAR initiated its inception phase on April 2022. Social Baseline Assessments has been conducted in July-August 2022, highlighting 12 challenges related to Social Service and Infrastructure.

The scope of this report is PAIDAR's first component ("availability and accessibility of social services and infrastructure") and all three PRS sub-strategies, with a more direct focus on RGC and Community Driven Local Development. **The objective of the report, within the domain of 'social services and infrastructure', is to outline the next step for PAIDAR, which involves proposing an operationalization process and identifying potential interventions for both RGCs and nearby as well as remote villages**. The objective will be achieved by a) framing the domain of 'services' (chapter 2), b) developing some relevant context analysis (chapter 3), c) conceptualizing the process of transformation (chapter 4), and d) offering few potential practical solutions (chapter 5).

This report is based upon a 9 days field trip conducted by the author on May 1st-9th, 2023. The field trip involved a team made of the author, UNIDO staff and members from the Directorate of Urban Regional Policy and Strategic Planning (URPS&P) from the Planning and Development Department (P&DD) of the GoS. The team visited different contexts in the southern districts of Thatta, Sujawal, Badin, Therparkar and met stakeholders in those districts and in Karachi. A detailed account of what was experienced is not the scope of this report, which may refer to those days only to give evidences or examples.

While it is primarily a *technical* paper, this report is not only addressed to a technical audience (engineers, architects, urban planner…), because of the multidisciplinary nature of services. Therefore, through its

structure and language, the report attempts to be accessible to a wider audience, including all UNIDO staff, local and provincial authorities, and other stakeholders involved in the implementation of the PRS and PAIDAR.

Enjoy the reading.

1. STRUCTURE OF THE REPORT

In order to come up with potential interventions to increase 'availability and accessibility of social services and infrastructure in Rural Sindh', the report has followed 4 progressive and linear steps:

1. Unpack what 'social services and infrastructure' means. This has implied to define and list of social services, to conceptualize what they are, to understand how they function and how they can be better implemented (chapter 2).
2. Highlight elements present in former context analysis and needed for this report, such as the 'Social Challenges' (chapter 3.1), and conceptualize 'settlements' in the assessed districts showing some features and dynamics which are important to be understood in an operational perspective (chapter 3.2)
3. Propose a 'process for transformation' (chapter 4), in compliance with PRS and PAIDAR documents, particularly the Baseline Assessments.
4. Brainstorm potential opportunities, specifically focusing on the specificities of the different settlements (chapter 5.1) and on 'services' (chapter 5.2)

Eventually, some final considerations (Chapter 6) will close the report, summarizing the main points and highlighting some potential further field of development.

2. SOCIAL SERVICES: Definition and characteristics

This report is about 'social services and infrastructure'. With the seemingly same meaning as '*social* service', the word 'service' appears coupled with other words, such as 'basic' and 'public', across PAIDAR related documents. The definition of 'social services and infrastructure' and their comprehensive list has not been found. This is why, this chapter, before analysing the characteristics of social services, attempt to define them and to make a list.

In a general sense, 'services' refer to activities or actions provided to meet specific needs or demands of individuals, communities, or organizations. Basically intangible, services can encompass a wide range of sectors and fields. Services considered by this report – the 'social' services – are as follows:

1. Water and sanitation services: these include the provision of clean water for drinking, cooking, and cleaning, as well as the collection, treatment, and disposal of wastewater[1].
2. Energy services: these include the provision of electricity and other forms of energy that are necessary for powering homes, businesses, and industries.
3. Waste management services: these include the collection, treatment, and disposal of solid waste, hazardous waste, and other types of waste.
4. Healthcare services: these include the provision of medical facilities and staff that help people maintain their health and well-being.
5. Education services: these include the provision of schools, teachers, and other educational resources that enable people to learn and develop skills.
6. Housing services: these includes the provision of safe and affordable housing, including public housing, rental assistance, and housing support services to meet the basic needs of individuals and families.
7. Transportation services: these include a range of infrastructure and modes of transportation that facilitate the movement of people and goods between different locations. This encompasses the provision of roads, bridges, and other essential infrastructure; transportation services incorporate various modes of public and private transportation, such as buses, taxis, trains, and other vehicles.
8. Communication services: these include the provision of telecommunication and internet services that enable people to communicate and access information.
9. Public safety services: these include the provision of police, firefighters, and prevention and emergency services that help keep communities safe and secure.
10. Financial services: these include the provision of banking and other financial services that help people manage their money and invest in their future.

All these services fall under PAIDAR's scope (or intersect it), either partly (such as 9. And 10.) or fully (all the others). Nevertheless, the report will mostly focus on 1-6, and mentioning or discussing the other services when relevant.

Services have an important contextual and cultural component. Which services are more essential than other ones, who has the power to manage them, which services (or which part of them) should fall under the public sector, which are the modalities and how (quality/quantity) services should be delivered are features that sometimes are written in policy papers and sometimes are just unspoken.

Functioning services do not necessarily imply *equitable* access to them. Equitable access may have to do with users' proximity, with their capabilities (mostly physical and financial but not only), and with their 'inclusion' regardless the groups they belong to.

[1] PAIDAR does not include agriculture. Therefore, while water services could be used for irrigation too, this report does not include water for irrigation (unless it is small scale, such as the irrigation for small plantations linked to the house)

Services should function even in exceptional situations. Therefore, services should be resilient to the hazards they might be exposed to, whether they are natural (such as floods or earthquakes) or human-induced (such as conflicts) or of any other nature (economical, health-related). When hazards occur, resilient services are able to continue functioning, albeit possibly at a reduced capacity, and can quickly recover. Resilient services are prerequisites for building resilient communities.

Services could be conceptualized in different ways. This report will use an easy conceptualization that consider that services require three elements to function: people (eg. staff, private entrepreneurs), hardware (eg. infrastructure, machinery, spare parts) and consumables (eg. chlorine, fuel)[2]. In addition, running services imply understanding, guiding and/or regulating human behaviour of the users, both at the individual and the community level. If the three elements are not present or not properly functioning and if the behaviour of the users is not taken into account, there is the risk that services do not function properly or even stop completely. This guiding framework (people, hardware, consumables and users' habit) is valid for both large and small (eg. a single water pump) services. How these elements are (physically, hierarchically, conceptually) assembled and in which ways they contribute (or not) to deliver services to the users depend on several interconnected reasons, such as the already mentioned contextual and cultural component, the users' habit, and, very important, the adopted technological solutions.

For all the characteristics explained above, it is important to consider services through a multidisciplinary lens, to unpack their complexity (eg. what really makes a hospital different from a clinic) and to consider their possible interdependences (eg. a hospital needs water, which needs electricity)

[2] This conceptualization has been taken from the publication issued by the International Committee of the Red Cross (ICRC): 'Urban services during protracted armed conflict: a call for a better approach to assisting affected people'

3. CONTEXT ANALYSIS

With the wide contextual analysis already present along PAIDAR documents and in the PRS, this chapter recalls what is directly needed for the report (Chapter 3.1) and tailors a specific analysis on the typologies of settlements present in Sindh Province (Chapter 3.2).

3.1. SOCIAL CHALLENGES

In regards with 'Social Services and Infrastructure', Baseline Assessments (conducted in August-July 2022) highlighted twelve 'Social challenges', here below.

These broad challenges have been validated by the team conducting the assessment in May 2023 and they will be used in this report (chapter 4 and 5).

3.2. SETTLEMENTS: TYPOLOGIES AND SITUATION

Social services are intrinsically linked with the places where people live and work, ie. the *settlements*. This is why this chapter will unpack how settlements in the southern districts of Sindh are. Adopting *complexity* of the settlement (ie. size, shape, services, diversity…) as a criterion, the assessment in the four districts showed two main typologies of settlements: 1) towns (which may be or may become RGC), and 2) villages. While the distinction might be blurred when it comes to villages very close to towns , this differentiation is important, because different typologies imply different needs, perceptions from the stakeholders and, consequently, approaches.

In this chapter, the situation of *towns* and *villages* will be exposed and discussed. In chapter 5.1., approaches specific to the typology are proposed.

Towns are settlements of low-rise (often two stories) buildings, including markets and facilities with a broader coverage than the settlement itself, like high schools, university, and hospitals. Sometimes, they host governmental offices. The population of the visited towns (Chuhar Jamali, Golarchi and Mithi) is variable, from 23'000 to 200'000. Considering number and concentration of population, services are centralized. The team visited some fully completed services – two Reverse Osmosis (RO) units in Therparkar and a Waste Water Treatment Plant (WWTP) in Golarchi – understanding how challenging the operation and maintenance of such systems might become. The RO units are out of service because of lack of funds and the WWTP is overflowing because wastewater exceeds the capacity of the plant. Apart from Thatta, where there is a huge road and a park, it seems that 'public spaces' are not particularly considered. Often, public open space seems to be just the connection between buildings. Particularly, green areas are not present.

According to the PRS, some towns are RGC and, as such, they host public investments for some projects (called '*Development schemes through PC1*').

DISTRICT	RGC (Population)	SCHEMES
Thatta	na[3]	-
Sujawal	Chuhar Jamali (23'000)	1) Construction of an integrated primary and secondary school for boys and girls, with separate classroom facilities and a block for shared facilities such as library, science lab etc. 2) Upgrade of the existing rural health centre (RHC) to taluka hospital standard 3) Improvement in external main roads and upgrade of internal roads (including drainage) 4) Construction of a Water Treatment Plant (WTP) 5) Drainage
Badin	Talhar (58'000)	-
Therparkar	Chachro (351'000)	-
Larkana	na	-

The team visited the first assigned RGC (Chuhar Jamali, in Sujawal District), assessing the building sites of four schemes – the school, the hospital, the roads and the Water Treatment Plant (WTP) – particularly focusing on the school and the WTP. The team relied mainly on a visual inspection and chats with the people at the construction site. While in both cases the works were not ongoing, the building sites are quite different. The school shows poor quality of concrete and the contractor seems not to be taking care of the quality control: no awareness of the contractual arrangements, and vague responses when it comes to site management and quality control of concrete cubes. On the other hand, the WTP seems reasonably controlled, with the supervising engineer who seemed to be having the progress and the quality under control.

Villages are small size settlements, with few houses and few communal facilities (often the community center). Sometimes they are surrounded by a fence made of trees' branches and bushes. Livestock often

[3] "A spatially decentralized approach was adopted for Thatta on account of the fact that population density therein is thin and there is no one site to fulfil all the requirements. Herewith, land for expansion of the existing school is available in Garho; the rural health centre (RHC) in Ghorabari is already approved for upgrading to Taluka Hospital and work is underway; and Ver is an economic centre. Moreover, there is a functioning water supply infrastructure in Ghorabari with capacity to expand supply to Garho and Ver. There is no drainage facility, which will need developing. Ghorabari, Garho and Ver are located within around 25 kilometres distance from each other such that they will provide their services to a common area" (from the 'Inception report')

lives close to the villagers. Remote villages are surrounded by agricultural fields. The majority of the people – if not all of them (like in Haji Meanwasyao Solangi Teshil) – has never left their village. Villagers seems to work and live almost exclusively outside, leaving what is considered as 'house' as a storage or a place only for the colder periods. Villagers do not own the land where they live: land is often in the hands of large landowners.

Few villages were visited during the assessment.

DISTRICT	Village (Population in households/HH)
Thatta	Goth Salah Muhammad (75 HHs)
Sujawal	Hamzo Khaskeli (80 HHs)
Badin	Haji Meanwasyao Solangi Teshil (300 HH)

An important factor to be considered is *proximity* of villages to services with broad scope and coverage (such as services provided by hospitals) and markets. Proximity is not just a matter of distance but also a matter of: 1) infrastructure (eg. roads) and their quality, 2) availability of public or private transport, 3) access to functioning means (like motorbikes or mobile phones), and 4) freedom to leave the village. These four dimensions of proximity shall be explored every time a village is assessed. Proximity allows circulation of goods, people, ideas from and to the village. Lack of proximity may have an impact on poverty. As an example, lack of proximity to a school may have an impact on education.

In villages, services are often of poor quality. Canals and rivers offer water for domestic use and for irrigation at the same time. When there are functioning wells, water is assumed as potable without any test. Open defecation is the norm and it is not clear how and if latrines are used. Electricity is missing, unless there are some individual solar panels. Waste is rarely collected and disposed: organic waste is for the livestock, otherwise it can be left in the environment or burnt. School might not be accessible, because of multiple reasons: they are far, small, in bad conditions, without teachers. A similar situation may happen for the health services.

All the visited villages have an extensive experience on working with national and international organizations, such as RSPN, NRSP, Hands. This was also clear in the way they presented themselves and explained their needs. Nevertheless, situation such as proximity between soak pits and wells, broken hand pumps, non-functioning individual solar panels, unused latrines pose some questions about quality, ownership and sustainability of the provided support.

3.3. ENVIRONMENT

Two 'social Challenges' – pollution (air, water, soil) and flood mitigation – are directly environment-related. While addressing them is out of PAIDAR's capacities, climate and environmental hazards could undermine some of PAIDAR's impact, because of their potential magnitude and because of the rural context where PAIDAR is.

It is unclear how the Government of Pakistan and the Government of Sindh will address the escalating environmental and climate crisis, which is expected to impact the country more severely and disproportionately affect vulnerable communities. As a matter of fact, Pakistan is highly vulnerable to climate change impact (according to the Notre Dame Global Adaptation Initiative Index, it ranks 146 out of 182[4]), having 'both a great need for investment and innovations to improve readiness and a great urgency for action", with particularly alarming vulnerability, given the agriculture and dam capacity, and

[4] https://gain.nd.edu/our-work/country-index/rankings/

the medical staff. News from 2021[5] and 2022[6] report the initiation of a National Adaptation Plan (NAP) but there is no clarity if the preparation is ongoing and when the plan will be completed, launched, and implemented. In terms of other environmental issues at the national level, the country is deeply affected by air, water and land pollution. On the other hand, the level of tree cover loss seems not alarming, included Sindh (0.73% decrease from 2001 to 2022[7]). While there are no data, public environmental awareness seems low.

[5] https://www.unep.org/gan/news/press-release/pakistan-develop-national-adaptation-plan-climate-change#:~:text=%E2%80%9CThe%20National%20Adaptation%20Plan%20process%20will%20strengthen%20the%20country's%20capacity,%2C%20experiences%2C%20and%20lessons%20learned

[6] https://www.preventionweb.net/news/national-adaptation-plan-building-resilience-climate-change-be-prepared-na-told

[7] https://www.globalforestwatch.org

4. PROCESS FOR TRANSFORMATION

How can the 'social challenges' listed at chapter 3.1 be tackled efficiently by increasing equitable access to the social services listed at chapter 2? Based on the PRS, PAIDAR's inception report and some of the discussions among PAIDAR team, here below a proposed process:

1. DEFINE what can be done (and what cannot be done) and DO it
    - prioritize the challenges, based on the needs and their impact (chapter 4.1.)
    - tackle selected communities in a holistic way, by trying to address more than one priority challenge at the same time rather than aiming at a maximal geographical distribution.
    - find positive intersections between two PAIDAR outcomes (services and business) in the same targeted communities. Both outcomes can intersect and mutually reinforce each other. For example, supporting the business of production and trade of construction material positively improve/facilitate the capacity of building infrastructure for services (and vice versa). As another example, supporting the business of production and selling of electricity produced by a private (collective or not) solar farm, improve/facilitate electricity services (and vice versa)[8].
    - find complementarities with other governmental and nongovernmental stakeholders, keeping the principles of holistic support and intersection of the two outcomes (previous two points).
    - be aware of what is out of a) PAIDAR scope or b) PAIDAR capacities (but within the scope) and could generate positive changes towards PAIDAR objective. As examples: agriculture, irrigation, large scale landscaping, Disaster Risk Reduction at the provincial level, technical support to the Electrical Company at the grid/provincial level. More of these will come out during the implementation.

2. ENGAGE with the communities during the *entire* process, to make better projects for more satisfied communities (chapter 4.2.)

3. LEAD by example, highlighting solutions which are innovative and sustainable (particularly from the point of view of gender equality and environmental impact)

4. SCALE UP programme ambitions.
    - promote and inspire other communities or stakeholders by sharing "good practices". Communication plays a crucial role in PAIDAR. Communication can be done by different means and people (eg. somebody from an external village could inspire by sharing her/his story)
    - look for partners to work with and, not to forget, to *influence* in topics relevant to PAIDAR. The academia could be a partner for both objectives (ie. 'work with' and 'influence').
    - advocate for targets out of PAIDAR reach (because of its scope and capacities) but at governmental or somebody else's reach (including other UN agencies).

A programme with such a wide geographical coverage has to rely on a Geographic Information System (GIS), for location and identification of communities and for prioritization, planning, management and evaluation of services interventions. Mapping different settlements with their communities allows to better find and elaborate the needs. A geographical picture could also help PAIDAR staff to understand

[8] PAIDAR will both influence and rely on markets. Few reflections on these bilateral dynamics could be done through the lens of 'market based programming', expressed in the guidance given by the WASH cluster, here. In particular, see p.16. The guide is for Humanitarian WASH, but the approach is general and can be expanded to development and to other services.

what other PAIDAR staff is doing in other areas or districts, to get inspired and to work together. Mapping could also serve the need for a Performance Management System for the PRS.

PAIDAR governance shall be very clear, to PAIDAR staff and to the stakeholders (especially the implementing partners). Particularly, social mobilizers, the so-called Cluster Development Agents (CDAs), should know which kind of support they can get and how, and how to engage with the communities.

Of particular importance for the process, prioritization and engagement with communities worth more elaboration in the next chapters (4.1. and 4.2.)

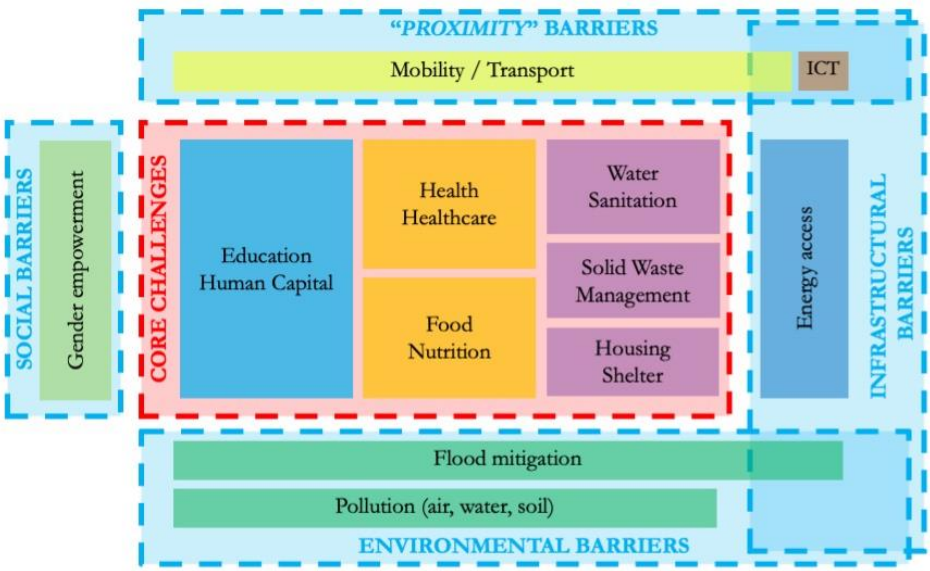
4.1. PRIORITIZATION

In order to make the 'social challenges' presented in chapter 3.1. more operational, they should be prioritized.

To prioritize the challenges, the proposed criteria are: 1) how relevant to the context challenges are, 2) how homogeneous and interconnected they are (ie. you cannot tackle one of them without tackling the other ones) and 3) how basic they are and what is their potential to be more impactful than others. Based on these criteria, social challenges are divided into 'core challenges' and 'barriers'.

Core challenges are six *priorities* to be addressed *directly* by PAIDAR: Water/Sanitation, Solid Waste Management (which is strictly connected with hygiene programmes which are usually implemented together with Water and Sanitation), Housing/Shelter, Food/Nutrition, Health/Healthcare, Education/Human Capital. They are interrelated, with strong health-related links among Health and Healthcare, Food/Nutrition, Water/Sanitation and Solid Waste Management. On the other hand, *barriers* are six other challenges that are considered *slightly* less important. Some of the barriers are transversal (eg. gender empowerment). Barriers can be tackled case by case and/or through different tactics (ie. by integrating them in the core challenges, by advocating for them).

Considering that poverty is measured through the MPI, the main pillars of MPI – Education, Health, and Standard of living – are used to arrange the core challenges (see in the scheme here below: education is in light blue box, health in orange boxes, and standard of living in purple).



While 'Food/Nutrition' is not directly tackled by PAIDAR, it could be tackled indirectly, by health and education programmes and by the business component.

This prioritization is just a reference, to ease the task of assessing the situation and coming up with solutions. As for any *general* prioritization, it has to be rediscussed and revalidated for any specific context (town/village, particular features of the settlement, local/district/provincial scale).

4.2. COMMUNITY ENGAGEMENT

As a part of the wider stakeholder engagement usually required in every project, in PAIDAR context (rural, with often very small communities) community engagement play a crucial role, by serving multiple purposes: understanding communities' needs, coping mechanisms, norms, and power structures; building trust with communities and strengthening their ownership; enhancing the effectiveness of PAIDAR; ensuring accountability of all PAIDAR stakeholders.

In regards with community engagement, PAIDAR's approach[9] should be defined together with the community and with other stakeholders, taking into considerations few aspects pointed out as follows.

- CDAs should have a common but flexible understanding of how to engage with communities. What works in a community may not work in another, but what works in a community is likely to work in *similar* communities.
- Different groups' voice shall be included. While women, boys and girls are clearly spelled out in all the documents, there is lack of focus on other usually vulnerable groups such as disabled and elders.
- Staff should be aware of the different methods and techniques to engage with the communities. Particularly effective may be community mapping, focus group discussion, street stalls[10], or transect walk[11].
- Engagement should go through all the project cycle: needs assessment and context analysis, planning and design, implementation and monitoring, evaluation and learning.
- Community engagement may be hard in towns, where population density is higher and vulnerable people are less visible. On the other hand, the presence of public spaces in town and the use of technology can help a lot.
- In terms of community acceptance and ownership, engagement is crucial to understand the lines among 'what is possible', 'what is hard but feasible' and 'what is impossible'. Sensitization activities (such as hygiene promotion) or programmes such as waste management might be 'hard but feasible', and it is very likely that they are not as feasible as the construction of a well. Once the lines among the three categories are clear, some trade-offs could be conceived.
- Communities and groups within communities deserve privacy and protection of their own data.
- Being community one of the stakeholders (for social services in villages one of the main), community engagement is part of a wider stakeholder engagement. Nevertheless, during the whole engagement and the project cycle, other stakeholders should not be forgotten. They may contribute or create obstacles, or they may just learn something communities and PAIDAR staff may want them to learn.
- Community engagement takes time.

9 There are several valid existing methodologies to be suggested. One of them is the IFRC Guide to Community Engagement and Accountability. For a quick overview on the methodology, see p.22-3.
10 https://www.communityplanningtoolkit.org/sites/default/files/Engagement.pdf
11 https://www.icrc.org/en/document/different-ways-have-different-conversations-different-people

5. OPPORTUNITIES FOR RESPONSES

PAIDAR context is wide and diverse and opportunities shall be explored accordingly. One-size-fits-all solutions are not possible. Opportunities which are likely to be effective and long lasting should come from an attentive balance among different contextual elements, such as natural resources (and the environment producing them), local habits, and available capacities. The following chapters explore the opportunities to address core challenges and barriers, in the different settlements (5.1.) and through services (5.2.).

5.1. OPPORTUNITIES IN DIFFERENT SETTLEMENTS

Following the situations of towns and villages, as explained in chapter 3.2, this chapter brainstorms opportunities for both kinds of settlements.

Opportunities for towns:

- Get the know the full picture: what are the towns in the four districts (location, presence or lack of services with broad coverage) and, most importantly, which are the future RGCs and what are the schemes. An open dialogue with local authorities – at different levels – is crucial, to understand or support the rationale behind the choice of RGCs and schemes and to find out how PAIDAR could support (see last three bullet points in this list)
- Explore opportunities in towns which won't become RGC. They might not become RGC but they may present few opportunities for service development whose benefit could spread into the villages around. This is the case of Golarchi. While it is not clear if it will become or not RGC, the visit showed some potentials given the size of the town and the presence of some interesting initiatives led by the current Assistant Commissioner. At this stage, it is not clear if these towns will fall under PAIDAR mandate, but it is crucial to keep them into account, to complete the full picture of each district (ie. how services in towns and villages interplay, in order to fully serve the population) and identify remaining important gaps which may need to be covered by other stakeholders.
- Quality control and proper site management of the schemes should become a priority during the entire construction period.
- Operation and maintenance of large facilities need particular focus, in order to prevent what has happened for the RO Unites in Therparkar and the WWTP in Golarchi. Starting during the design phase, every scheme should have an operation and maintenance plan (detailing economic and HR aspects).
- If the typology of schemes chosen for Chuhar Jamali is the main approach (ie. investments are prioritized for water, drainage, education, health and roads) there is the risk to neglect services which may prevent health (including well-being) and environmental impact. There are some neglected areas PAIDAR could explore complementarity with the public investments.
    - Services for removal, treatment and disposal of wastewater (eg. Waste Water Treatment Plants) and waste management services.
    - The design of public space, such as market square and parks. Particularly, the creation of green areas in town, or just trees along the streets, could be a viable solution (also to reduce heat in the towns). This kind of solution should not be necessarily a single intervention but it could easily be coupled with other schemes (eg. WWTP)

Opportunities for villages:

- The limited size of the villages may allow to work at many services at the same time, in order to have a more likely impact. The six core challenge (as in chapter 4.1.) gives guidance in what to prioritize. An assessment will shortlist the challenges to a workable number (2-3). Particularly, it

would be important to understand what could be improved in previous processes of support, to improve services' *acceptance* and *ownership*.

- When it comes to 'acceptance', investigating how people in the villages think and live is crucial. It might not be as easy as it seems. A specific work of community engagement – with different groups in the community (such as women, elders, children, disable) is required.
- In villages where PAIDAR steps in with an important response, the programme shall carefully consider to strengthen villagers' security of tenure, 1) by understanding if the land/house belongs to the villagers (at the individual and/or communal level) land and, in case of insecurity of tenure, 2) by exploring ways to secure it. While this might be a sensitive topic, security of tenure would increase the likelihood of a long-lasting impact and ownership of services' projects.
- Considering the presence of many stakeholders already supporting villages, any intervention shall consider the complementarity with others' activities and support. Particularly, the complementarity with the Sindh People's Housing For Flood Affectees (SPHF), which is doing a huge housing programme for 2,1 millions flood affectees, has to be explored. PAIDAR's objective (poverty reduction) can profit from SPHF's objective (build back better the houses of flood affected families) by coupling services to SPHF programme.
- It is important to work creatively with communities, to increase *proximity*. If the school is too far away or is it just unsuitable, why not having a roving teacher teaching directly *in* the villages? If people are highly unlikely to leave their villages, why not taking to their village any other villager who may inform, teach, inspire them through her/his story (which revolves around services or business)?
- Communal use of services has to be explored. Why building individual latrines when it is possible to make a block covering the whole village? Are *communal* kitchens acceptable? Communal use may require *communal* operation and maintenance. Is that a viable option (from the social and economic point of view)? Similar questions should be asked for every service, finding potential job opportunities (eg. a maintenance villager)
- Similarly, focus on *communal space* is very important. Currently, communal space in villages is not designed. Design could have a role in some core challenges or barriers, generating interesting opportunities such as green areas (or just plants), small playgrounds for kids, shades where women could gather, street solar lamps where people could also recharge their mobiles. Villagers may also need community spaces or other facilities (eg. a safe area in case of floods).

5.2. OPPORTUNITIES RELATED TO SERVICES

Taking stock of the general features of the services explained in chapter 2 and focusing mainly on the services related to the core challenges discussed in chapter 4.1 (*mainly* but not exclusively, since other services are considered), few modalities and solutions to understand and increase access are presented and discussed in this chapter.

This chapter has by no means the intention to be a *comprehensive* and *comprehensively articulated* guide. Instead, it gives some general guidance on the reasons of what exists already and on how PAIDAR could address the core challenges by showing some methodologies and proposing, explaining and comparing some practical solutions valid for the target districts in Rural Sindh. This chapter does not replace the need for careful technical assessments

As a general habit, <u>for any services</u>, it would be important to ask few preliminary *guiding questions*, such as:

- Are services for a town or for a village?
- Do services already exist? If *proper* services do not exist, are there coping strategies?
- Who are services owners' (ie. owns the service and the natural resources that service uses) and managers? Is the service individual or communal? Is it private or public? How does the governance of service provision work?

- Who are the users? What are their habits? Are there specific groups with specific needs and habits (eg. women, children, young people, elders, and disabled)? How users value the services, in economic and non-economic terms? Would they be open and capable to pay?
- Are there some layers of complexity (ie. while being part of the same services, hospitals and clinics may have the same users but usually different scopes) to be understood?
- What are the people, hardware, and consumables needed for the services?
- What and who is needed to operate and maintain the services?
- What makes the services *equitably* accessible to everyone? In replying to this question, groups such as women, children, young people, elders, and disabled should be attentively considered, because they often do not enjoy the same level of access as other groups. Given PAIDAR specific focus on "gender empowerment", women shall be a priority group.
- What is the social, economic and environmental impact of the services?
- Are the services resilient to the hazards which may occur, such as floods?
- How services are opportunities to shape the public space? (eg. a pump is not only a water point but could be a gathering place and could trigger the making of a playing area)

These questions help in understanding which are the features, the barriers, the needs to make services work better and to last or, if services are not existent, to create them. In the following sections, some of these questions have been tailored to specific services and, sometimes, answered. Even if they are not answered, these questions shall be asked in all the chapter 5.2.1 and 5.2.2.

This chapter is based on standards or best practices internationally used in rural and small size urban contexts. Often, some humanitarian standards (eg. Sphere Handbook) are mentioned, as the reference for minimum unnegotiable standards. A comprehensive review of technical Pakistani standards could highlight some divergences.

5.2.1. SERVICES DIRECTLY RELATED TO THE CORE CHALLENGES

Water (for domestic use) and sanitation services

Water is essential for drinking, for cooking, for maintaining hygiene and, often (in water-based evacuation systems), to make sanitation functions. In PAIDAR context, three kinds of water sources are available: surface water from canals, groundwater and rainwater. While it is often used for domestic uses, surface water is exposed to all kinds of contaminants and, unless proven otherwise, it is considered non potable and has to be treated. Groundwater is often potable, but there are situations (when very close to contaminated surface water, pits, or sea) when it might be contaminated or with a too high concentration of salt. Groundwater should be pumped or lifted out. Rainwater is a potential source too, which has to be captured (eg. through impermeable roofs) and treated. While water could be used for small scale irrigation, this section does not include water for irrigation.

Potable water (ie. without pathogenic organism, low concentration of toxic chemicals and with no elements preventing users' acceptance) shall be tested through microbiological, chemical and physical analysis. Laboratories in the closest town shall be able to guide on how to take samples. Depending on the results, there are different treatments (at the source but also at the users' level). Commonly used low-cost water treatments at the household level are: biosand filtration, ceramic filtration, chlorination and boiling.

In urban settings, required water for domestic use is 30 gallons per person per day while in rural setting the standard is 20 gallons per person per day (Pakistani standard). According to Sphere Handbook, the average *minimum* quantity of water is 15 liters per person per day, with water points closer than 500 m.

Here below few options to improve access to water service.

IDEAS	FEATURES	WHEN IT IS RECOMMENDED
Well with hand pump	Simple and cheap technology, with limited maintenance and usually for shallow groundwater (even if there are hand pumps for deep wells). It is good to consult a hydrogeologist knowing the area (for the location and design of the well). Groundwater may not need particular treatment, but it should be tested.	Mainly in villages or where there is a small population (max 500 people for each pump). It could be used in town too, for selected groups and for individual use.
Well with motor/electrical/solar pump	Higher capacity (depth and quantity) than the hand pump. Usually simple to operate but requires high capital investment and skilled maintenance team. It is good to consult a hydrogeologist knowing the area. Groundwater may not need particular treatment, but it should be tested.	In villages when there is a deep water table (even 100 m), a bigger population with higher demands.
Collective or individual rainwater harvesting system.	It requires a catchment area (such as an impermeable roof), it is easy to maintain and gives usually good quality water. It has a higher capital cost, compared to alternative water supply options for providing water at scale.	When there are little alternatives of easily accessible potable water (ie. in villages far from canals)
Infiltration well/gallery or small dams to capture water from the canals, with subsequent water treatment	Using water from the canals requires treatment, which usually implies maintenance and running costs. Usually, it entails: a) pre-treatment by settlement, b) slow sand filtration, and c) chlorination.	In towns or big villages, where there are large user groups and potential to centralize the service. It can be done in small villages too, if there is a strong community, willing to form a committee to manage the system and collect money for the operation and maintenance.
Centralized network with household connections, with water plant capturing and treating water from the canal.	Complex with high capital investment (eg. Chuhar Jamali Water Treatment Plant). It requires a trained staff supported either by a water authority or by a committee.	In towns or big villages, where there are large user groups and potential to centralize the service.
Centralized network with household connections, with water plant capturing and treating groundwater.	Complex with high capital investment (eg. Reverse Osmosis Units in Therparkar). It requires a trained staff supported either by a water authority or by a committee. Groundwater may not require treatment, but it should be tested.	In towns or big villages, where there are large user groups and potential to centralize the service.

How water is stored and consumed at the household level is crucial. This is why hygiene promotion programme (see at the end of this chapter) includes a section on water storage and consumption.

Usually coupled with water services, there are *sanitation services*. Sanitation is "as a multi-step process in which human excreta and wastewater are managed from the point of generation to the point of use or ultimate disposal"[12]. Because of their scope, sanitation services are usually not as appreciated as other

[12] As defined in the Compendium of Sanitation Systems and Technologies

services, and tends to be neglected. MPI's sanitation index in rural areas scores 50% of deprivation. During the assessment, several family latrines were observed (some of them damaged by floods) but it is not clear if all of them were used. Therefore, it is likely that much more than half of the rural population practices open defecation. Particular care shall be given to understand habits and acceptance of any sanitation solutions. In doing that, different groups (women, children, elders, disabled) should be involved, consulted, and sensitized.

According to Sphere Handbook, the maximum quantity of people for one shared latrine is 20 persons (max 50 meters distant) and one for a family or 5 persons.

Particular attention shall be given to floods, considering that many locations in the areas of the programme are prone to this kind of hazard. In *A review of sanitation technologies for flood-prone areas*, the authors suggest that:

> The main recommendations to mitigate the harmful effects of floods are: (a) to discourage open defecation; (b) allow people to use their own latrines as a priority; and (c) use of improved sanitation systems, which are designed to reduce the risk of contamination, such as Pit latrine with slab, Flush/pour pit latrine, Ventilated improved pit latrine, Ecological toilet, and Septic tank. For these technologies, it is recommended to raise its structure to guarantee its full functioning during the flood

These recommendations are integrated in the proposed ideas below.

IDEAS	FEATURES	WHEN IT IS RECOMMENDED
Single ventilated improved pit (VIP) latrine, with slab	It is the simplest, economic and one of the most widely used sanitation technology. Through a pipe from the pit, it uses ventilation to decrease odour and flies. When the pit is full (depending on how they are big and used, they may take 20 years to be filled), it can be closed and another one should be made. Alternatively, the pit should be emptied and the faecal sludge removed, treated and disposed. A hand washing facility (with water and soap) shall be associated to it.	In villages, when there is enough space to close the pit (once is full) and make another one. Water table should be more than 5.5 m deep (2 meter from the bottom of the pit) and water sources at least 30 m distant. If the soil is impermeable (eg. rocky), they are not suitable. In case of shallow groundwater and in case of flooded areas, a *raised* pit could be used.
Pour-flushes latrine, with two distant leach pits	It is a water-based system, which is normally preferable but it may face some issues of acceptance. The two pits are used alternatively. When one the pit is full, it should be closed and the other should be used. After two years, the degraded material becomes pit humus. It can be excavated and used in agriculture. A water point is needed.	In villages, with enough space for two pits. Water is available and the soil is permeable (no rocky soil) Not suitable when there is frequent flooding.
Communal pour-flushes latrines, with septic tank, and discharge to infiltration trenches/ soak pits or horizontal subsurface flow constructed wetland.	Septic tank is a two or three rooms tank where wastewater is treated: solid matter is liquified, facilitating its sedimentation and bacterial degradation. Periodically (usually 2-5 years), septic tank has to be emptied. Particular consideration should be given to faecal sludge, which settles at the bottom of the tank and may be dangerous for the health of the workers. Mechanic means and/or protective clothing are needed to remove sludge and either bury it at a safe place or bring it at a treatment plant.	Where there are large user groups (ie. a neighborhood but also a village can be considered) and capacity to safely do maintenance. If there is no capacity or will to do maintenance, better not to use the septic tank. In flooded areas, the use of septic tank with a *raised* slab for the latrine is one of the best solutions.

	A water point is needed.	
Pour-flushes latrine, sewer network, centralized waste water treatment plant (WWTP), discharge to the canals	Complex with high capital investment. It requires expert design and construction, as wells as trained staff for the operation and maintenance, supported either by an authority or by a committee. WWTP resilience to flood shall be part of the design. A water point is needed.	In urban areas with large user groups, small space for the treatment, and availability of canals.
Pour-flushes latrine, sewer network, centralized waste water treatment plant, discharge to horizontal subsurface flow constructed wetland	Complex with high capital investment. It requires expert design and construction, as wells as a trained staff for the operation and maintenance, supported either by an authority or by a committee. WWTP resilience to flood shall be part of the design. Inside the wetland, native plants with deep wide roots can be used. It is not maintenance free, especially at the beginning. A water point is needed.	In urban areas with large user groups, small space for the treatment, and large space for the disposal.

NOTE: Especially in towns, stormwater (ie. the rainfall runoff collected by roof, roads,…) and greywater (ie. Water generated from washing food, clothes and dish, as well as bathing) are collected together with the blackwater (urine, faeces, flashwater, anal cleansing water and dry cleansing material) in *open* trenches. This is something which is not recommendable. What is ideal is 1) two separate networks – one for stormwater and a one for the blackwater – in order to prevent unnecessary overload for the treatment plants and 2) closed trenches for the blackwater, to prevent odour and potential contact with human beings. Understandably, this solution 'by the book' might not be applicable for different reasons. Nevertheless, it is important to be aware of this solution and to sensitize local authorities who might not know.

Particular care should be given to the operation and maintenance of water and sanitation services (as it is pointed out in one of the guiding questions 5.2.). Even the simplest well with hand pump or the most basic pit latrine requires knowledge and capacities, in how to use (or operate) them and how to maintain. When the service increase in complexity, a committee or a body is required. Spare parts, equipment and consumables shall be part of the initial package supported by PAIDAR, including capacity building of the people delivering the service (even if they are the users themselves). Among the capacities, even in villages it should not be underestimate accountancy, because even the most low-cost solution is not free when it comes to operation and maintenance.

To be effective, water and sanitation services should be coupled with *hygiene promotion*. Hygiene promotion makes people aware of the public health risks related to water, sanitation and hygiene and makes them understand what are the measures to reduce those risks. Hygiene promotion entails a set of activities involving different segments of the population. It has to include topics such as 'menstrual hygiene management and incontinence' and be necessarily connected with the identification of hygiene items (and how to make them accessible to everyone). Hygiene promotion might be a very sensitive activity, touching some taboos (such as menstrual hygiene) and some deeply rooted habits (such as open defecation and the proximity with animals and their faeces). It needs experienced workers taking time to engage effectively and openly with the community (as a whole and with specific segments such as women, children, and people with specific needs). If available, health data can support some decisions. For all these reasons, it is recommended to involve a local partner with proven experience in similar programmes. Hygiene items, such as soap or water filters, might open opportunities for business.

By engaging in discussions with communities and consulting local health workers, it is possible to determine the prevalence and distribution of *vectors* (such as mosquitoes, flies, lice, and rodents) as well as the frequency of vector-borne diseases (such as malaria) among the population. *Vector control* is a mix of preventive and curative measures at the settlement, household and individual level. Sometimes, few small changes could make remarkable impact. Therefore, vector control shall be considered too. Often adequate solid waste management activities help a lot (see next chapter).

Solid waste management services

According to PSLM data, less than one percent of the population in Thatta, Sujawal and Tharparkar uses Solid Waste Management services. In Badin, this figure stands at 9%. Solid waste generates health risks and environmental pollution: it may create favourable habits for disease vectors, it may pollute surface water and groundwater, it may cause injury or infectious diseases. The selection of a solid waste management system and its operation and maintenance should be agreed upon the stakeholders, mainly community and local authorities, and should cover both household and collective levels.

Existing methodologies – in towns and in villages – should be investigated, to understand what drives them and what is needed to make them function better and more efficiently. Towns and villages require different responses. A purely infrastructural response, like for every service, is usually not sufficient. Sensitizing the population on risks and needs connected with a proper waste management service is of utmost importance.

The economic value of plastic and metal is already generating business opportunities. Along this value, some opportunities to repay this service could be explored.

Communities might need to be persuaded about the importance of waste management, hygiene promotion and vector control.

Healthcare services

According to the PSLM 2019-20, almost half population in PAIDAR context is deprived from access to health facilities (in rural settings, it is 57%). In finding solutions for the health service, it is imperative to engage with the communities and the relevant authorities (at local level but not only), in order to understand what are the barriers preventing individuals (or some of them) to access the health service. The guiding questions could be as follows:

- Which barriers prevents the *functioning* of the services? Answers to this question could be that: skilled staff is missing, health facilities are not functioning (or not existing), and/or equipment is missing. It might be useful to understand what are the 'root causes', which are often identified as 'budget related', but budget is not necessarily the only (or main) cause. However, root causes, which are not necessarily easy to identify, might not be needed for a response.
- Which barriers prevents the *accessibility* of the services? Answers to this question could be that: health facilities are too far away, and/or people (or some groups) are not able to go to the health facilities (or to pay for the service) or they are not thinking of/allowed to.

Once the picture full is clarified, which solutions can be put in place? Few ideas here below:

- Advocate to the relevant authorities for a change and/or give them technical support to improve the service and/or cofinance crucial actions or facilities which could have a long-term impact;
- Mobilize the communities and sensitize them to the importance of *equitable* access to health services, and empower them to access the services;
- Support individuals or organizations developing ideas to remove some of the barriers preventing access.

Education services and lifelong learning opportunities

An approach similar to access to health services could be applied here. According to PSLM 2019-20, for education there is a 37% of deprivation in PAIDAR context (in rural settings, it is 54%). By 'education', PSLM does not include what SDG4 (which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all") refers to as "lifelong learning opportunities". Differently from MPI, SDG4 puts emphasis, in SDG 4.3 (Equal access to technical/vocational and higher education) and 4.4 (Relevant skills for decent work), on learning opportunities happening *after* the young age. Considering the prioritized social challenge about 'Education *and* Human Capital', this section deals with both education *and* 'lifelong learning opportunities'.

A couple of guiding questions to find solutions to *access to education service*, could be as follows:

- Which barriers prevents the *functioning* of the services? Answers to this question could be that: teachers are missing, schools are not functioning (or not existing), and/or equipment is missing. It might be useful to understand what are the 'root causes', which are often identified as 'budget related', but budget is not necessarily the only (or main) cause. However, root causes, which are not necessarily easy to identify, might not be needed for a response.
- Which barriers prevents the *accessibility* of the services? Answers to this question could be that: schools are too far away, and/or people (or some groups) are not able to go to the schools (or to pay for the service) or they are not thinking of/allowed to.

Once the full picture is clarified, which solutions can be put in place? Few ideas here below:

- Advocate to the relevant authorities for a change and/or give them technical support to improve the service and/or cofinance crucial actions or facilities which could have a long-term impact;
- Mobilize the communities and sensitize them to the importance of *equitable* access to education service, and empower them to access the services;
- Support individuals or organizations developing ideas to remove some of the barriers preventing access (eg. roving teachers going to the communities)
- Some of the opportunities earlier discussed, such as 'hygiene promotion', could nicely goes into education programmes too.

When it comes to *lifelong learning opportunities*, the idea of creating Community Learning Centers (CLC) could be explored. CLC are community-based centres where adults can access various educational resources, including books, computers, and internet connectivity. These centres can offer courses, workshops, and training programs on various subjects, such as:

- Adult literacy programmes (reading, writing, numeracy)
- Vocational programmes on topics such as handicrafts, tailoring, carpentry, plumbing, mechanics, and electrical work.
- Hygiene promotion programmes.
- Basic entrepreneurship.

CLC should not be alternative to what already exists. On the contrary, it should use existing structures as much as possible. While this idea seems more viable for towns or big villages, it can be adaptable and used for small villages too. There, the usable space could be the one in community centres (with a corner with books for children or for illiterate people) or in primary schools, (in shift with young students). The most challenging part is the long-term functioning of this idea. Are there institutions/entrepreneurs/trainers/teachers interested to team up and invest for creating CLC? Is there any landowner who is enlightened and interested in developing skills of the villagers? For CLC, PAIDAR could consider giving technical and financial support.

Housing services

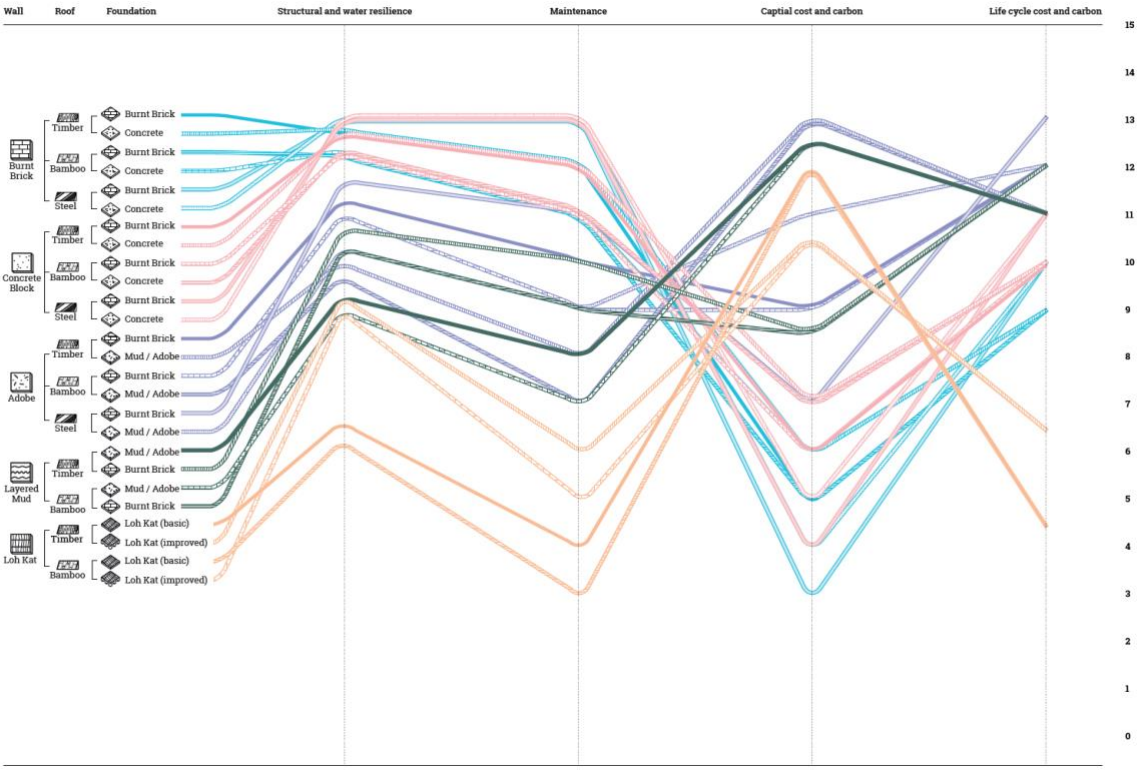
Differently from other services, houses have a largely (if not exclusively) individual component. Building houses implies many steps. Some of them are particularly important, such as 1) understanding how people live (where and how they spend time and what this implies), 2) stating criteria to select few households in need of house and exclude other ones, 3) defining house typologies and technologies (ideally standardized but with some flexibility) which are resistant, acceptable, and sustainable, and 4) deciding the role and the kind of involvement of the house beneficiary. Stakeholders and community engagement is particularly important, especially in complex environments like the ones when housing issues are overlapping with humanitarian crisis with an impact on houses (such as the flood crisis hitting Sindh in 2022). In such situations, several humanitarian actors might be present and it is crucial an effective coordination, to have a bigger impact and to avoid overlapping or lack of coherence in the provided support.

During the assessment which led to this report, the team met Sindh People's Housing For Flood Affectees (SPHF). This housing program is run through implementing partners (5 local ngos) and covers 2.1 million households who had their houses destroyed or damaged by 2022 flood, mostly in villages (where the houses are less resilient to flood than in the towns, where the majority of houses are mud houses). SPHF grants span 0.3 to 0.5 million rupees (in 4 instalments). SPHF is a purely housing programme, it does not include other services. Part of SPHF knowledge, approach and insights has contributed in shaping this chapter.

With regards with the point 3 (defining house typologies and technologies solutions) of the above-mentioned steps, the "Pakistan Shelter Guide Design for improved flood resilience in Sindh" (done in 2017) reviews, through three different criteria (safety and water resilience, acceptance and sustainability) the performance of different materials and technologies for the 'one room shelter' typology. Based on an evidence-based study, the guide help to choose the optimal solution not only to increase flood resilience but also to have a suitable standard house. Seismic resistance is excluded, which makes sense for most of Sindh (low intensity of seismic hazards) but not for some areas in Sujawal, Badin and Therparkar.

The Guide considers the most common technologies used in building house walls in Sindh: Loh Kaat (timber/bamboo frame, bamboo/grass matted walls with mud rendering), Mud (layered mud construction), Adobe (sun-dried mud brick constructions), Concrete Block (Masonry using cement bricks/blocks) and Burnt Brick (Masonry using charcoal fired bricks). Houses with concrete blocks and burnt brick are what people calls 'pucca' house while houses with loh kaat, mud and adobe are called 'kutcha'

Here below the graph with different technologies' scores.



Considering the context and after a review of the above-mentioned guide, few PAIDAR related recommendations here below:

- The four steps mentioned above are of crucial importance:
  1. Understanding how people live: this is possibly the most sensitive part, since wrong assumptions could completely mislead the response. As an example, differently from Northern Sindh, in Southern Sindh, people live outside (including sleep and eat) much longer than inside[13]. This is why some organizations, together with the construction of the houses, include in their assistance the construction of a veranda (a shaded area in front of the house). This step highlights how housing is interconnected with other services and make understand if other facilities (such as latrines or kitchens) shall be part of the assistance. Also, this step could help in understanding if there is some room for *collective* facilities (such as latrines or kitchens).
  2. Stating selection criteria for beneficiaries: criteria shall be decided directly with the communities and shall be perceived as *fair* as possible.
  3. Defining house typologies and technologies: the work done in the Guide could largely help in making this choice. While the Guide is not prescriptive, in flood prone areas, houses with Mud walls and Loh Kaat walls score quite low. Therefore, in flood prone areas houses with burnt brick walls, concrete block walls and adobe walls with burnt brick foundations are largely preferable. In areas which are not flood prone, the entire spectrum could be considered [14]. Comfort (especially for temperature control) is particularly important, considering hazards such heath waves. Temperature control should be done through thermal insulation (especially on the roof) and ventilation (with windows and opening on the walls). Cultural acceptance plays an important role and it would be important to get the solutions validated by the communities or to guide them.

[13] Based on an interview with an employee, working for the International Organization for Migration (IOM) in Karachi.
[14] In general - especially in the seismic areas of Sujawal, Badin and Therparkar – an engineer with familiarity with Pakistani Building Code should be consulted.

4. Deciding the role and the kind of beneficiaries' involvement: house owners who take part to the process and are able (or requested) to put efforts (time, money) in *their* house are more likely to adapt the house to their unique needs and are more likely to *own* their houses at a deeper level.

- Community should be engaged through the four steps above and should make sure that – among other things – beneficiaries are selected with limited community tensions and the most vulnerable households are included.
- Security of tenure is crucial. "Secure land tenure and property rights enable people in urban and rural areas to invest in improved homes and livelihoods"[15]. Lack of security increase the risk of eviction and weaken ownership (not simply meant in a legal way). It is not necessarily the only reason but houses built over somebody else land are usually less durable. Aware of this, SPHF makes sure that everybody entitled to a grant to build a house is also allowed to purchase the land over which the house is built. Housing programs shall make sure that the owner of house is the owner of the land too. This is not necessarily an easy task, because in Rural Sindh most of the land is owned by few large landowners. Using figures coming from SPHF survey, they highest part of the land for their housing programme is owned by Government, the beneficiaries or the community themselves, but there is a 20% owned by the above-mentioned landowners. While some of the landowners are open to sell small plots for the housing programme, many other are not. In any case, with tenure, taxes may come too. Also, formalization of lands in urban areas, may cause unaffordable lifestyles and make few owners sell their houses. Even if PAIDAR does not step into housing, in villages where the programme operates, it should consider to secure villagers' land and house tenure. In general, it worth analysing and discussing the issue of security of tenure with a local legal advisor.
- Land use and hazard maps shall direct the decisions: where to locate houses (and where not to) and some features (height of the houses, technology…). At this stage, it is not clear if these maps exist and their quality.
- Ensure coordination with other organizations. Particular care should be given to avoid duplications and to make a support which is either comparable with the one provided by the other organizations or, if it is dissimilar, justifiable. Very often, organizations propose different packages of support. It is fine as far as there is a justification (based, for example, on vulnerabilities) and does not imply competition to get the better packages. Particularly, given its size, SPHF is the main reference.
- As mentioned in the chapter "4. Process for transformation", it is recommended to tackle communities in a holistic way. To have a more likely impact, housing services shall be coupled with other services. This is why PAIDAR could work together with SPHF, to supply a full package of services in selected settlements where SPHF is already enabling the construction of houses.

The presence of a big player such SPHF shapes the construction market, in terms of production of construction materials and in terms of construction companies. Given this opportunity, PAIDAR could support specific studies (for construction material or for technologies) and support construction businesses which want to start, improve, or innovate.

[15] UNHABITAT, LAND TENURE SECURITY IN SELECTED COUNTRIES: Synthesis Report

5.2.2. SERVICES DIRECTLY RELATED TO THE 'BARRIERS'

Energy services

When it comes to energy, two aspects are relevant for PAIDAR: heath for cooking and electricity (for several uses and users).

In regards with heath for cooking, MPI for cooking fuel is 86% in rural areas, which means that 86% of the family uses *solid* cooking fuel. Even when solid fuel is available, using it without proper stoves causes impact on human health and natural environment, is inefficient, and can generate accidental fires. The consequences are mainly born by those who cooks and are one of PAIDAR main focus: women. Solutions such as electrical stoves (included solar ones), or the use of fuels like liquefied petroleum gas (LPG) may not be viable in settings with limited access to electricity, markets, and cash. Nevertheless, in villages relying on agriculture, there is large availability of biomass (of various kind, including rice husk). Therefore, it might be interesting to test:

- efficient biomass cookstoves, with chimney pipes. In Lahore, there is a well establish reality – Jaan Pakistan[16] – which might be interested in expanding (or strengthening) their business in Sindh. On the other hand, coupled with other interventions (eg. housing or hygiene promotion), PAIDAR may want to cofinance the distribution of stoves. If this is the case, a gradual step-by-step approach shall be considered, in order to test the acceptance of the technology.
- biogas stoves, connected to a (collective) biogas digester. Even if not complicated, the operation and maintenance of a biogas digester requires some attention. If properly designed, this option is certainly a promising one in a place where there is organic matter (such as cattle dung, human excreta from latrines, food waste) usually lost in the environment.

When indoor, stoves without chimney pipes negatively affects indoor air quality. Pipes are recommended. If, for some reasons, this is not possible to propose pipes, outside cooking shall be promoted (as Heritage Foundation does[17]).

In regards with electricity, the unreliability of the main electrical grid is causing issues for households, businesses and essential services connected to the grid and lacking independent power sources. Supporting the electrical authority with the main grid is out of PAIDAR's capacities but few ideas could be explored, such as: technical support for specific studies (for technical improvement, for innovative technologies), staff capacity building, purchase of some specific equipment needed. Also, minor but impactful grid interventions could be considered such as dedicated electrical lines for essential services (eg. hospitals, water treatment plant).

Aside the main electrical grid, mini-grids are feasible, both in towns and villages. Solar technologies seem particularly promising, because of their availability and increasingly more affordable costs. The creation of solar grids and plants could be an option if some users are open to team up or entrepreneurs are interested in the energy market (or a solution among the two). The creating of plants and grids should be carefully evaluated from the engineering's point of view and through a feasibility plan for operation and maintenance. Even if the grid is not for commercial purposes, there are operation and maintenance cost. Therefore, crucial questions shall be asked: 'is electricity valued in a way that people will pay to have access?' and 'how much will people pay?'. In villages, the feasibility of micro hydroelectric dams and micro eolic systems could be explored, too.

At the household level, in some villages, small solar systems have been distributed. They can be useful to power bulbs and recharge phones or small devices. It is not clear if this intervention was effective. Some panels are not functioning. Encouraging individual solar systems could be an option but other ideas

[16] https://www.jaanpak.com/

[17] Pakistan Shelter Guide Design for improved flood resilience in Sindh, p.24

should be explored before: *communal* electrical points (to recharge phone and batteries and to give lights to the public space) and support business with solar (lamps, fridge, pump).

It Is Important not to be overenthusiastic about solar. It Is an Increasingly cheaper technology but It needs capacities: to operate and maintain it.

Transportation services

Transportation services are about infrastructure (roads, rivers…) and modes of transportation (motorbikes, cars…). PAIDAR could consider the support of infrastructure improvements (which, for small unskilled works, could generate community jobs) or the support of individual wanting to start private transportation services (such as a taxi business).

Communication services

With mobile phones quite spread, it is important to inquire about the network coverage. If this signal could be improved, PAIDAR could support through infrastructural improvements, capacity building or equipment. Strengthening network coverage may create benefits for other services. In villages, recharging phones (or the batteries of other means such as radios) might be an issue to be addressed through communal electrical points powered by solar energy.

If there is anybody interested in broadcasting valuable information (podcasts/videos through radio/mobile phones), they could be supported, especially if they are among PAIDAR targeted groups (women). Particularly, people with inspiring stories (especially women) could be asked to share their stories in the villages. PAIDAR could facilitate the transport and help in framing the messages.

Public safety services

As explained in chapter 3.3., the situation of environment is an important factor to be considered. PAIDAR should follow up the preparation of the National Adaptation Plan and other initiatives to prevent and cope with environmental and climate crisis. The programme could contribute:

- by advocating for the preparation of the plans;
- by implementing few measures which could benefit people in Sindh province, such as specific technical studies (eg. flood related), tools (early warning system or sensitization/information campaigns), or infrastructure (safe flood resistant areas).

5.2.3. THE PUBLIC / COMMUNAL SPACE

Public space (usually in towns, owned and managed by the municipality) and *communal space* (usually in villages, managed by communities but not necessarily owned by them) is where people could gather, interact and fulfil other communal needs. These spaces – which includes roads, squares, but also facilities such as community centres, markets, libraries… - connect or overlap with many services. Public and communal space present an important opportunity for PAIDAR. Here below few complementary and overlapping ideas:

- Involve architects or designers to design the space *with* the communities. Particularly, involving architecture (or engineering) students could generate mutual benefits for the academia and the targeted communities.
- Before considering a *private* response to services, consider how a *communal* response within the communal (or the public) space could strengthen communities' ties and create jobs. This could be the example of *communal* wells, *communal* latrines, or *communal* electrical points.
- Improve the quality of existing spaces such as market places, squares and roads through:
    a) better services (ie. drainage, solid waste management…);
    b) plants or green areas, which would give many benefits such as decrease the temperature;

c) art, which can beautify spaces and communicate messages (eg. hygiene or equality related). The easier form of art is painting, but also other forms could be explored.

- Use new services as an opportunity to make more enjoyable spaces. A water well could be a place where to make shades and/or playgrounds.
- Support spaces or facilities communities require and need, such as community centres, safe flood resistant areas, parks, street libraries.

While working at the level of the public/communal space, accessibility to that space and land ownership are important aspects to be taken into account.

6. FINAL CONSIDERATIONS

The complex and multifaceted context of the five districts targeted by PAIDAR and the breadth of the topic of social services give some limitations to this report. The implementation will say exactly which ones.

While the programme will be rolled out, few opportunities will become more obvious and concrete than other ones and few other will come out, thanks to the increased a) knowledge of the context and the stakeholders (and their knowledge/capacities) and b) awareness of the dynamics among communities and individuals in Sindh. Most importantly, during all the phases of the projects, there will be the chance of looking into the cracks of the situations of poverty, and understanding what can be more impactful and what can trigger positive domino effects. Meanwhile, the stakeholders, aware of the potentials of a comprehensive programme like PAIDAR, could be more proactive in engaging with UNIDO staff. Probably some of the core challenges and barriers could be redefined, at least in some specific areas. Some of the ideas will prove to be working well, some not.

Learning should be part of the process and lessons learnt shall be progressively integrated: in the programme itself, in other UNIDO's programmes, and in the governmental and non-governmental stakeholders approaches and way of thinking.

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