

Business Unit

# *Key recommendations for SHS*

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**pwc**

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# *A Recap*

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## ***Challenges to SHS implementation...***

- Institutional and Organizational
- Technical and Implementation
- Financial
- Social and Market Based Factors

## ***Key factors to keep in mind...***

- Impact varies from country to country
- Most of the shortcomings are interrelated and cannot be solved independently from each other
- Important to address three critical factors
  - Affordability - SHS needs to be made more affordable
  - Availability - Essential to ensure availability of reliable product and after sales service
  - Awareness - Increase awareness about potential benefits and proper usage

## ***Governments need to engage more and become more active stakeholders***

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- Important to integrate Off-Grid Solar solutions into electrification strategy and plan
- Specific programs focusing on rural electrification and subsequently on SHS is essential
- A dedicated program ensures focused approach and planned targets
- However establishing targets not enough. Developing support mechanisms are also crucial
- Need to set holistic and overarching policy goals that provide a broad vision to all implementing agencies while also setting priorities, targets and accountability
- Countries that have committed programs for SHS such as Bangladesh, Bhutan and Nepal have seen success in increasing the usage and acceptance of SHS.
- Important for governments in Pakistan and Afghanistan to integrate off-grid solar/SHS into their national electrification plans, have a dedicated SHS program, set baselines and targets and periodically track progress

## *The correct institutional arrangement can lead to more inclusive and effective outcome*

- For larger countries like India, Pakistan and Afghanistan - more involvement of the local and regional bodies is needed
- Difficult for a central authority to implement and monitor programs
- Trust and Need are also major factors – Local state bodies and municipalities will have better understanding of the needs of the local population. Also the local population will have more trust on the state bodies
- Hence central government - planning and investment; state governments - set individual targets and look after the complete implementation, execution and monitoring of the program
- However for success of decentralized approach – adequate expertise, know how, administrative capacity and efficient coordination between the central and local bodies is essential
- For relatively smaller countries like Bangladesh, Nepal, Bhutan and Sri Lanka – centralised approach is fine; However essential to involve local bodies in the planning process

## ***Clarity and transparency on electrification plans and targets is essential to safeguard stakeholder interest***

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- In SAARC states there have been multiple instances of villages getting grid electrified within a year of being provided with SHS
- Interest of multiple stakeholders are involved (IA, Rural Households, MFIs etc)
- Policymakers should mix centralized top-down grid extension with decentralized demand-driven bottom-up strategies (mini-grids and standalone solutions).
- The territories to be electrified or are a prospect to be electrified should be clearly identified and well communicated
- However, creating such an extensive plan that has to be periodically updated can be a difficult task, especially for larger nations like India, Pakistan and Afghanistan.
- Incorporate policies that are favorable for all; such as - provision that if any household gets electrified within 3 years of receiving the SHS, it can sell the SHS back to the implementing agency for a pre decided depreciated fee

## *Subsidy on kerosene is a major deterrent to progress of SHS (especially in India)*

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- In SAARC nations, especially India, kerosene is also used for lighting purposes.
- While kerosene subsidy is provided in India and Bangladesh, the amount of kerosene subsidy provided in India is substantial
- The size of kerosene subsidy should be gradually decreased through continued year-on-year reductions of allocations to states. Incentivizing the mechanism through cash incentives to states who uptake voluntary reductions has worked well in the past.
- Policymakers can also look at introducing a solar voucher. These vouchers would allow households to replace traditional kerosene lighting with off-grid solar power.
- Alternatively, even a direct cash transfer would help in reducing the bias. If households would receive their kerosene subsidy in cash, perhaps through India's Aadhaar system, households would not be forced to buy kerosene to benefit from the policy
- In most of the other SAARC nations there is no subsidy on kerosene. However the usage of kerosene for lighting purposes in these nations does serve as a barrier for SHS

## ***Quality standards need to be implemented and enforced on all SHS products being sold***

- Most SAARC countries have designated bodies which are responsible for specifying the technical requirements and quality standards for individual components
- However these standards are not applicable or mandatory for systems sold via commercial model.
- Need a quality framework which ensures that all SHS products sold, either through government schemes or through private players, meet the quality specifications and performance standards
- Set up authorized test centers in the country and mandate that products of all companies should be independently tested and verified for quality
- Alternatively, devise a quality mark (eg: like the ISI mark in India) for product specification of SHS that would indicate that the product is safe to use and is meeting the minimum requirements
- Monitoring and adherence is equally critical - Suppliers who do not adhere to the set quality standards should be penalized and even blacklisted for repeat offence
- In countries where the quality ecosystem is not well developed (like Pakistan and Afghanistan), the government can also look at collaborating with IFC's Lighting Global program.
- The program, currently present in India, Bangladesh and Pakistan, operates an independent Quality Assurance framework which covers factors like durability, system quality, maintenance, and warranty. The framework has incorporated international standards and methods



## *Last mile distribution issues should be addressed to increase penetration of SHS*

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- Pakistan and Afghanistan suffer from poor last mile distribution channels which affects the penetration of SHS
- Inadequate transport and communication infrastructure have contributed to poor distribution channels in the two countries
- However, last mile distribution is crucial as it generates as well as helps in meeting demand. It can overcome barriers like trust in technology and product availability
- An effective distribution model is most appropriate at an early stage, when the trust, demand and market penetration are low (as is the case in Pakistan and Afghanistan), and it is vital to reach out to early adopters
- Community level distribution model and Franchisee model are some of the more successful last mile distribution models that have been used

## ***Establishing mechanisms for proper disposal or recycling of used batteries will become important***

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- Disposal of used lead batteries is a major issue in all the SAARC member states.
- Challenge is bigger and more prevalent in countries like India, Pakistan and Afghanistan which are larger in size and have a number of existing agencies selling SHS via the commercial model
- Both, the government as well as the suppliers/implementing agencies need to play a role
- Suppliers/Implementing Agencies should engage with local distributors and other channel partners to coordinate the setup of collections and take-back logistics so that consumers can benefit from easier access to convenient disposal options
- Government should build consumer awareness and look at creating local level implementation mechanisms through technical assistance to ensure that batteries which are recycled are done through a formal set up
- Government can also look at encouraging consumers as well as suppliers or distributors by introducing incentives like exchange offers and upgrades

## ***In nascent markets, “Smart Subsidies” should be provided to increase end-user affordability while not distorting the commercial market in the long run***

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- High initial investment costs and irregular income of rural families affects adoption of SHS
- However, past experience shows that giving subsidies directly to the end user is not sustainable
- It is more impactful when addressed towards institution and capacity building measures.
- Grants from development agencies have been passed on by the government in the form of subsidies for SHS implementation in Bangladesh, Bhutan and Nepal. All the three countries have had good success in their SHS implementation.
- In Pakistan and Afghanistan, the government needs to direct the grant funding it receives from multilateral institutions and bilateral donors for spurring the off-grid/SHS growth in the country
- The emphasis should be to set up an off-grid electrification fund and structure a grant-subsidy mechanism in the form of Output Based Aid (like in Bangladesh) that would link the payment of subsidies to the delivery of specific services, or outputs.
- The government should stress on “smart subsidies”, that are transparent, rule bound and time limited while creating an enabling environment through institutional capacity building.
- Forming a dedicated fund will help in having a strategic dedicated focus.

## ***Important to encourage commercial partnerships between MFIs and private SHS suppliers/IAs***

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- Multiple benefits of leveraging Microfinance Institutions (MFIs) - provides a supply of credit to households with no access to formal banking institutions, lowers initial investment barrier, contributes through wide network and rural penetration, enjoys high trust levels with the rural population and puts emphasis on usage of high quality products
- SHS using microfinance institutions has been taking place in Bangladesh, Sri Lanka and India.
- In India and Sri Lanka, some MFIs have faced issues of irregularity in instalment payments
- Difficulties and cost related to credit assessment of end users can be minimized by bundling SHS systems with existing microcredit products such as agriculture loans and livestock etc
- To ensure that unexpected expenses related to administrative costs do not come up, it is important that the financial scheme should be based purely on cost coverage principles
- In Pakistan, while the microfinance industry is growing, lending for renewable energy initiatives has not yet picked up. Government needs to create an enabling environment
- Ensure reliability risk is mitigated by ensuring quality and technical standards are followed.
- Invest in training of on ground sales staff and creating awareness among the consumers

## *Use of innovative finance models can make SHS affordable and convenient*

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- Innovative finance models such as pay-as-you-go (PAYG) have been successful in Africa.
- It has not yet been tried by majority of the SAARC players.
- PAYG is a completely customer centric model that combines solar and mobile technology. The product and the payment arrangements are affordable, simple to use, reliable and convenient.
- Customers pay off the monthly instalments using their mobile phones and after one to three years, they fully own the systems
- Various business models can be designed to respond to the needs of rural households and their ability to pay.
- A Bloomberg analysis found that “pay-as-you-go companies attracted twice as much investment as cash-sales companies in half the time.”
- To enable models such as PAYG to be widely adopted, SAARC member governments have to enhance the parallel development of mobile payments and financing systems :
  - Strengthen the mobile infrastructure and facilitate mobile payment platforms
  - Ensure that transaction costs for mobile payments are kept low or exempted.

## ***Legislative framework can accelerate SHS by reducing costs***

### ***Government incentives – (import duty / taxes)***

- Development of supportive tax and customs framework
- These should consider import and tax exemptions for import of solar technologies to be used in off-grid applications
- Should be applicable during the initial phases in countries which do not have in house solar manufacturing capability
- Exemptions will keep the cost of SHS systems low
- Non-Distortionary in nature as it creates a level playing field for commercial/private enterprises

## ***Lack of product knowledge needs to be addressed through direct engagement.***

- Above-the-line marketing through TV and radio advertisements typically makes little difference to actual sales, certainly in the early phases of growth
- Direct engagement by field staff at the village level is needed to educate the consumer on the value of the product
- Supplementing this with below-the-line marketing, such as product demonstrations, door-to-door selling and wall paintings, leads to higher sales conversion rates
- High marketing costs and resource-intensive sales processes are difficult to absorb into a sustainable business model
- Focus on the right purchasing drivers. Economic benefit, i.e. cost savings or income-generating opportunities, will be valued far higher than health benefits
- Target the decision-maker. Early campaigns appealing to women in India typically failed, as husbands were not convinced. However later the solar saheli model of promoting SHS was successful in India

## *Lack of Trust needs to be remedied through measures like after-sales services.*

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- Partnering with well-regarded and trusted brands can help early-stage enterprises build credibility and reduce risk perception
- Word-of-mouth is critical to sales in low-income communities. Early customers will be higher earners, who are more likely to carry weight in the community
- Extensive after-sales support is needed. Warranties and guarantees are similarly crucial to customer loyalty
- Independent standards or quality assurance will be increasingly important to build trust in new products as the markets develop
- Female sales agent and entrepreneurs are far better than their male counterparts in selling SHS and its components
- Customers find that women are better able to explain these products and are more likely to believe that they are safer and easier to use



# Recommendations

(1/2)

## Set a strong Institutional Foundation

- Governments need to engage more and become more active stakeholders
- The correct institutional arrangement can lead to more inclusive and effective outcome
- Clarity and transparency on electrification plans and targets is essential to safeguard stakeholder interest
- Subsidy/Incentives on alternate lighting sources or fuels (like kerosene) should be reduced

## Develop a robust Quality framework and distribution model

- Quality Standards need to be enforced in a consistent and coordinated manner on all SHS products being sold and be supported by capacity building and training to be effective
- Last mile distribution issues should be addressed to increase penetration of SHS
- Establishing mechanisms for proper disposal or recycling of used batteries will become important

# Recommendations

(2/2)

## Adopt Financing Mechanisms that can make the system more affordable

- Provide “Smart Subsidies” in nascent markets to increase end-user affordability without distorting the commercial market in the long run
- Encourage commercial partnerships between Micro Finance Institutions and private SHS suppliers/Implementing Agencies
- Look at innovative Finance models that can make SHS more affordable and convenient

## Increase SHS adoption through Awareness and Promotion

- Build consumer awareness and product knowledge through direct engagement with the consumers
- Establish trust by adopting measures like engaging with community ambassadors and providing effective after sales service

## Summary of major barriers and recommendation (1/5)

Issue	Impact			Comments	Recommendations
	High	Medium	Low		
Overlapping of grid and off-grid	Nepal	India	Bangladesh , Bhutan , Sri Lanka	Barrier not faced in Pakistan & Afghanistan due to low SHS implementation	<ul style="list-style-type: none"> <li>Integrated planning required between off-grid &amp; on-grid.</li> <li>Alternatively, develop policy to buyback SHS if the concerned area is electrified within 3 years.</li> </ul>
Institutional weakness		Pakistan & Afghanistan	Bangladesh , Nepal , Bhutan , Sri Lanka , India		<ul style="list-style-type: none"> <li>Large countries like India, Pakistan &amp; Afghanistan should have active involvement of central as well as local authorities (de-centralization)</li> </ul>
Conventional fuel subsidies	India	Pakistan	Bangladesh , Pakistan , Nepal , Sri Lanka		<ul style="list-style-type: none"> <li>Encourage direct cash transfer or reallocate subsidies via solar vouchers</li> </ul>

## Summary of major barriers and recommendation (2/5)

Issue	Impact			Comments	Recommendations
	High	Medium	Low		
Quality issues	Pakistan , Afghanistan	India	Bangladesh , Bhutan , Nepal & Sri Lanka		<ul style="list-style-type: none"> <li>• Technical standards for all components</li> <li>• Authorized testing centres</li> <li>• Mandatory after sales service and warranties for government and all commercial players.</li> <li>• Non – adherence will invite strict penalty.</li> </ul>
Capacity building	Pakistan , Afghanistan	India	Sri Lanka , Nepal , Bhutan , Bangladesh		<ul style="list-style-type: none"> <li>• Set up dedicated training centres</li> </ul>

## Summary of major barriers and recommendation (3/5)

Issue	Impact			Comments	Recommendations
	High	Medium	Low		
Last mile Distribution	Pakistan , Afghanistan	India	Bhutan , Bangladesh ,		<ul style="list-style-type: none"> <li>Community level distribution channel should be present which promotes , follow up sales activities and monitors dealer / agent networks</li> </ul>
Battery Recycling	India , Sri Lanka , Pakistan , Afghanistan , Bhutan , Nepal	Bangladesh			<ul style="list-style-type: none"> <li>Better processes should be in place to ensure safe recycling of batteries</li> </ul>
Program funding through grants / subsidies	Pakistan , Afghanistan	India	Bangladesh , Sri Lanka , Bhutan , Nepal		<ul style="list-style-type: none"> <li>Structure grant subsidy mechanism in the form of output based aid.</li> <li>Stress on smart subsidies that are transparent rule bound and time limited</li> </ul>

## Summary of major barriers and recommendation (4/5)

Issue	Impact			Comments	Recommendations
	High	Medium	Low		
MFI Set up	Afghanistan	Pakistan	Sri Lanka , Bangladesh , India	Bhutan & Nepal – SHS implemented without MFI	<ul style="list-style-type: none"> <li>Government should look to create an enabling environment and encourage commercial partnerships between MFIs and private SHS vendors</li> </ul>
Use of Innovative financial model like PayG		India , Pakistan	Bangladesh , Bhutan	In Bangladesh, Bhutan & Nepal funding has been through grants and aids.	<ul style="list-style-type: none"> <li>Players should offer consumer centric and customizable models using mobile payments</li> <li>Government should look to facilitate and enhance mobile payment platforms</li> </ul>

## *Summary of major barriers and recommendation (5/5)*

Issue	Impact			Comments	Recommendations
	High	Medium	Low		
Awareness of SHS	Afghanistan	Nepal , India , Pakistan	Sri Lanka , Bangladesh		<ul style="list-style-type: none"> <li>• Increase product knowledge and trust among customers</li> <li>• Look at innovative approaches to widen channels for promotion and implementation</li> </ul>