

HER ROAD TO FREEDOM

From Clean Energy to Sustainable Transport

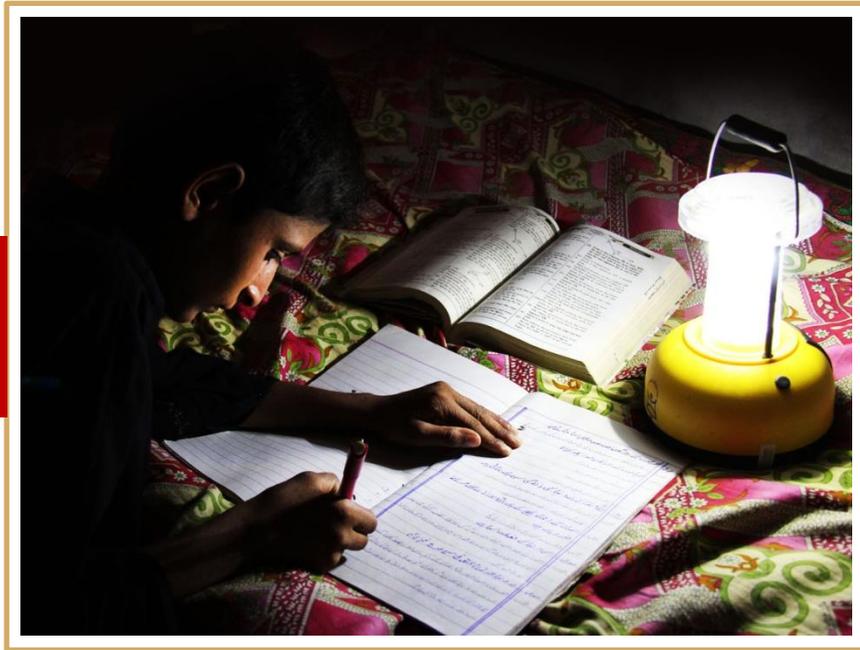
An Initiative by
FIZA FARHAN
KASHMALA KAKAKHEL

BACKGROUND

- Pakistan has been in the grip of **energy crisis since 2008**, resulting in a rising dependence on fossil fuels.
- **44% of Pakistan's population (200M) lives without access to the Grid**, those with access face 6-14 hours of blackouts daily
- Over **50,000 villages are detached from the national electricity grid**, and these communities have no choice but to resort to informal fossil fuel to generate any form of energy.
- Of these, **49% comprise the country's poorest communities**, exposed to multi-dimensional poverty, living on an income of less than \$2 /day.
- Considering the diverse and hazardous challenges to not only human life but the environment, **"Lighting a Million Lives" (LAML)** was launched in 2013.



WHAT IS 'LIGHTING A MILLION LIVES' INITIATIVE?



THE PURPOSE OF LaML

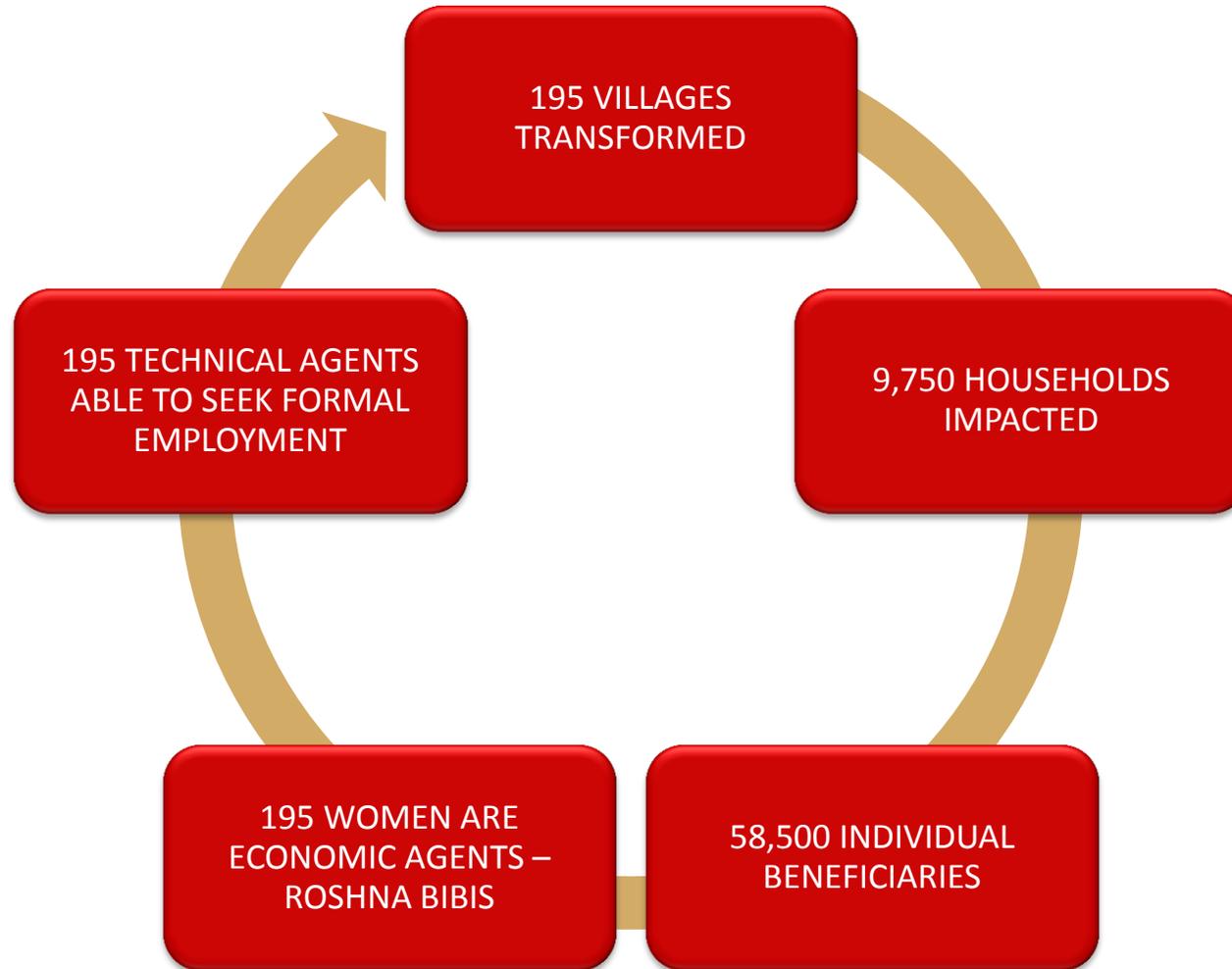
- An **integrated turnkey sustainable development solution** that ensures access to affordable, reliable and modern energy for thousands of off-grid villages in Pakistan.
- **Efficient, environmentally friendly (IFC certified) solar lanterns with solar mobile charging stations**, through a community based centralized solar charging station (SCS).



HOW DOES LaML OPERATE

- In each village the SCS is operated by a woman entrepreneur, selected and trained from the community, thereby appointed as the 'Light Lady' of the village, or the '**Roshna Bibi**' in local peak.
- Further, a **male technician is trained** from the community to create technical capacity building of the village towards sustainable deployment of the project.





RESULTS AND IMPACT OF LaML

- **60-80%** reduction in cases of children dying due to oral kerosene poisoning
- Approximately **50,000 watts of solar energy** has been implemented in **200 villages** across Pakistan replacing informal kerosene oil based fuel
- Nearly **190 kg of carbon emissions** being saved per day by replacing kerosene and wood burning with solar lanterns
- **70 tons of carbon emissions** are continued to be saved from being injected in the environment with the total number of LAML villages installed till date
- The environmental protection achieved with the project is equivalent to the plantation of **724 additional mature trees** being planted



WHAT IS NEXT ?

- Women in Pakistan are held back in three critical areas of development:

Access to School

Timely Medical Care

Lack of Market Linkages for
Small Scale Entrepreneurs

The Common Denominator?

Lack of
sustainable, secure and affordable transportation
within their rural settings.

PROPOSED SOLUTION



HER ROAD TO FREEDOM

PROPOSED MODEL

- Providing **100 solar powered *rickshaws*** (three wheel drive) to **100 women entrepreneurs in 100 off-grid** villages of Pakistan
- These women will only cater to women clients, with routes set between schools, nearby hospitals, and carriers of goods produced by small-scale entrepreneurs
- Another significant need of women entrepreneurs from these rural villages will be addressed with the provision of **portable solar home kits to 100 women rural micro-entrepreneurs**

TRADITIONAL VERSUS Solar POWERED *RICKSHAWS* - RATIONALE

FINANCIAL COMPARISON (US\$)		
	Traditional Rickshaw	Solar Powered Rickshaw
Capital cost	1,500	4,000
Annual cost of petrol	1,700	0
Approx. running cost in 2 years (excluding maintenance)	4,900	4,000
Payback period for solar rickshaw	Less than two years	

TRADITIONAL VERSUS Solar POWERED *RICKSHAWS* - RATIONALE

TECHNICAL COMPARISON		
	Traditional Rickshaw	Solar Powered Rickshaw
Carbon emmisions	7 tons annually	Nill
Efficiency	Adulterated fuel, effiency lowers significantly	No adulteration, effiency remains standard
Noise pollution	Severe	Negligible
Repair and Maintenance	High	Minimum
Fuel cost	Severely impacts journey cost	No impact to journey cost
Research break through	Almost nill	Constant research on solar panels to provide eben more efficient conversion, making it more viable

- Sustainable Development Goals
 - Goal 1 – No Poverty
 - Goal 5 – Gender Equality
 - Goal 7 – Clean Energy
 - Goal 8 – Good Jobs & Economic Growth
- Paris Agreement on Climate Change
- UN High Level Panel on Women Economic Empowerment

THE GLOBAL GOALS

For Sustainable Development



LINE OF ACTION

- At a cost of **US\$ 4000 per *rickshaw***, this grant can cover **100 villages, 60,000 beneficiaries** out of which approximately 50% are women and girls.
- The female entrepreneur will also be provided **training, licensing, solar installation of the *rickshaw***, and all other related backend support.
- In addition with this grant, **100 existing female micro-entrepreneurs** will be provided with access to portable solar based energy system in the form of a turnkey **“Portable Solar Kit.”**

KEY CHALLENGES & SOLUTIONS

- Involvement of the **male members of the family** is key to running such models successfully in Pakistan.
 - **Solution:** Following the LAML approach, the male members will be trained for repair and maintenance of the rickshaw. Therefore, they will also have an extrinsic motive to support the women.
- The **acceptability and ownership of the elders** of the community is critical for not only the successful deployment but also the sustainability of the initiative.
 - **Solution:** Elder's consent form and interaction with the village elders.

ANTICIPATED BENEFITS

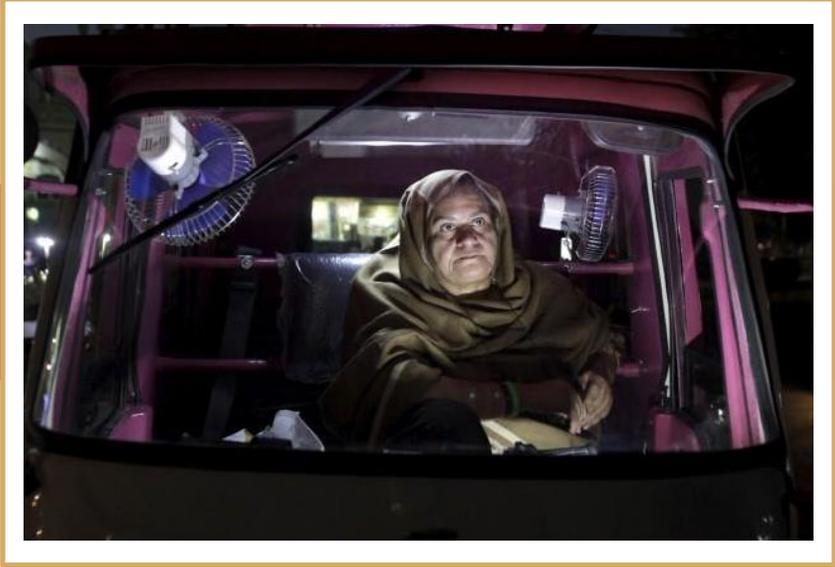
- 100 solar powered *rickshaws*

- 100 women entrepreneurs

- 100 off-grid villages of Pakistan



ANTICIPATED BENEFITS

- Will **cater to girls/women** who are held back due to unsafe or culturally unaccepted means of transport (male driven vehicles).
 - **A steady income** for the women entrepreneur.
 - **Lower transportation cost** for the lady customer as compared to using more expensive ones run on fuel.
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- A photograph showing a woman wearing a brown headscarf sitting in the driver's seat of a rickshaw at night. The rickshaw is illuminated from within, and the woman is looking towards the camera. The background is dark, suggesting it is nighttime. The rickshaw has a blue fan on the left side and a white fan on the right side. The woman is holding a yellow object, possibly a bag or a piece of paper, in her lap.
- A community saving circle to which each lady driver will **contribute 10-20% of her earnings** which will be used for the maintenance of the rickshaws.

Input

- US\$ 1 million provided by UNDESA through its 'Powering the Future We Want' Programme

Interventions

- Hiring local community members to form a core delivery team
- Careful selection of high quality, solar powered rickshaws best suited to local conditions
- Selection and training of 100 women drivers in 100 villages of Pakistan, catering to women clients only through a pre-determined route.
- Establishing a system of saving circles to which 20% of earnings will be contributed monthly. This will be for repair and maintenance-ensuring sustainability.
- Providing portable solar home kits to women entrepreneurs in the village for dual usage at their enterprise as well as for their homes

Outputs

- **Access to Education**
 - Increase in number of girls going to school in the rural area of Pakistan due to the availability of safe and affordable transportation to school
- **Access to healthcare**
 - Increase in number of safe deliveries at proper healthcare facilities in Pakistan due to convenient, accessibility and reasonable transportation system in place at the village level
- **Improved market linkages**
 - Increase in income for existing women entrepreneurs by increasing number of productive hours through the portable solar kits, as well as direct access to market for their products-removing the 'middleman' in the process

Outcomes

- Women in 100 villages are in charge of their access to basic social services. They also have access to clean energy solutions that will improve economic conditions through direct access to the market.
- On average, 100 households per village, and a total of 60,000 individuals benefited from the initiative, directly.
- 100 women empowered with solar rickshaws enabling them to earn sustainable income while create sustainable transportation modes for around 30,000 women and girl from the village.
- 100 women entrepreneurs impacted with access to clean and affordable energy solutions

Impact

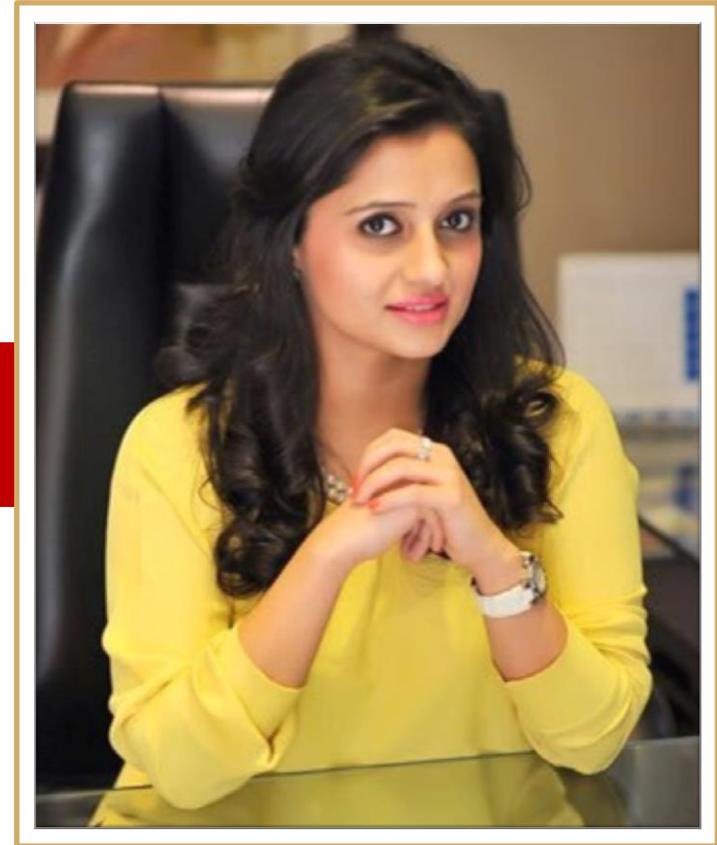
- Pakistan responds to its energy challenge, and directly addresses core society issues through establishing a community owned energy efficient transportation model with a dual approach:
 1. Provision of “direct” sustainable transportation mode i.e. Solar Rickshaw
 2. Provision of “indirect” sustainable transportation mode through portable access to clean and affordable energy i.e. Solar Kits for rural women entrepreneurs

ACHIEVING SUSTAINABILITY

- After the 30 month period in these particular villages, the initiative will not only continue, but will also be **up-scaled to other villages**.
- **Village coordinators may be retained** by the women entrepreneurs and supported by the savings they make each month after the grant itself is over and can no longer sustain compensating the delivery team.
- The village coordinator will continue to act a **'problem solver'** for those women entrepreneurs to still may need a helping hand beyond the 30 months.

THE LEAD TEAM – FIZA FARHAN

- Global Strategic Development Advisor working with the Governments, UN Agencies & Development Sector at large.
- Member UN Secretary General’s High Level Panel on Women Economic Empowerment
- Chairperson to Chief Minister Punjab’s Task Force on Women Empowerment
- Benazir Income Support Program - Women Empowerment & Gender Specialist / UNDP Advisor of SDG’s / World Bank Advisor on Gender Strategy
- CEO Buksh Foundation / Director Buksh Energy Private Limited (2007-2016)
- Selected in the Forbes Asia, “30 Under 30 List of Social Entrepreneurs” twice in 2015 and 2016



THE LEAD TEAM – KASHMALA KAKAKHEL

- Policy Expert, Climate Finance.
- Supports developing country governments on policy issues under the UNFCCC negotiation process.
- Particular focus on the global Green Climate Fund - improving operational structure as well as supporting governments to access funding.
- Currently exploring existing environment of Pakistan to potentially use insurance as a coping strategy in the face of disasters, with the Asian Development Bank (ADB).
- Board Member, Climate Action Network (CAN) International.
- Policy Expert, Women's Environment and Development Organisation (WEDO), New York.
- Extensive experience in Bangladesh, India, Malawi, Myanmar, Nepal, and Pakistan.





Giving HER the key to Leadership, Empowerment & HER Road to Freedom

THANK YOU

FIZA FARHAN



@Fiza_Farhan



@Fiza Farhan



Fiza-Farhan-Official

KASHMALA KAKA KHEL



@kashmala_14