

Hybrid Mini-Grids: Lessons from Lao PDR



ASEAN-RESP Rural Electrification Workshop *International Best Practices & Options for Policymakers*

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About Sunlabob & Nam Kha I & II



- **Sunlabob: Laos-based, internationally-focused expert in off-grid energy and clean water solutions**
 - Experience throughout Asia-Pacific, Africa and India
 - Solar power, mini-hydropower, water pumping/purification and energy efficiency

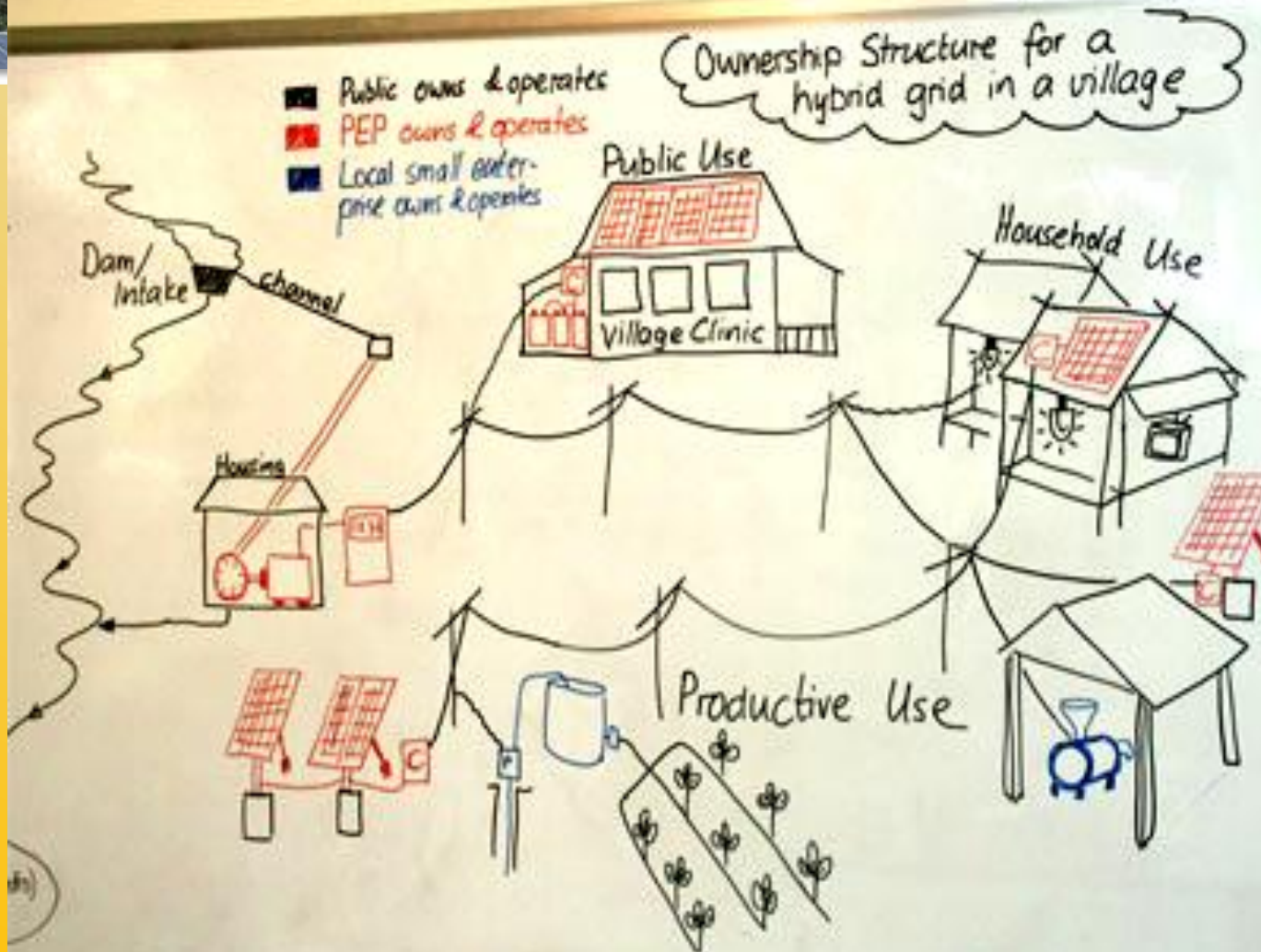
- **Hybrid mini-grids of focus: *Nam Kha I & Nam Kha II***
 - *Nam Kha I* established 2007; *Nam Kha II* 2010
 - In partnership with GoL, Helvetas and AusAID
 - Technology: Hydro-solar hybrid (200 kW)
 - Operational model: Public-Private Partnership, Sunlabob as IPP
 - Remote, off-grid area of Xieng Khaung Province
 - Approximately 650 households

Why a Hybrid Mini Grid Approach?



- **Enabling affordable rural access** to electricity through “win-win-win” approach for private and public sector and remote communities
- **Direct local employment through** training and hiring of villagers to manage/maintain systems
- **Reduces cost of grid extension**, and can become an incentive that “pulls” national grid to remote areas
- Once grid-connected, mini-grids **can act as “systems fringe boosters”**, ensuring stable voltage at the outer reaches of national grid
- Taps into vast solar & hydro resources through an approach that largely sidesteps a lack of rural infrastructure

Nam Kha I Hybrid Mini Grid: Approach



Nam Kha I Hybrid Mini Grid: Challenges



~~Win-Win-Win Situation~~

End-Users get access to electricity
and capacity building
(Tariff too high)

International Agency as the public
partner can rely on electricity for rural
development efforts

Providing electricity is the income
stream for private partner

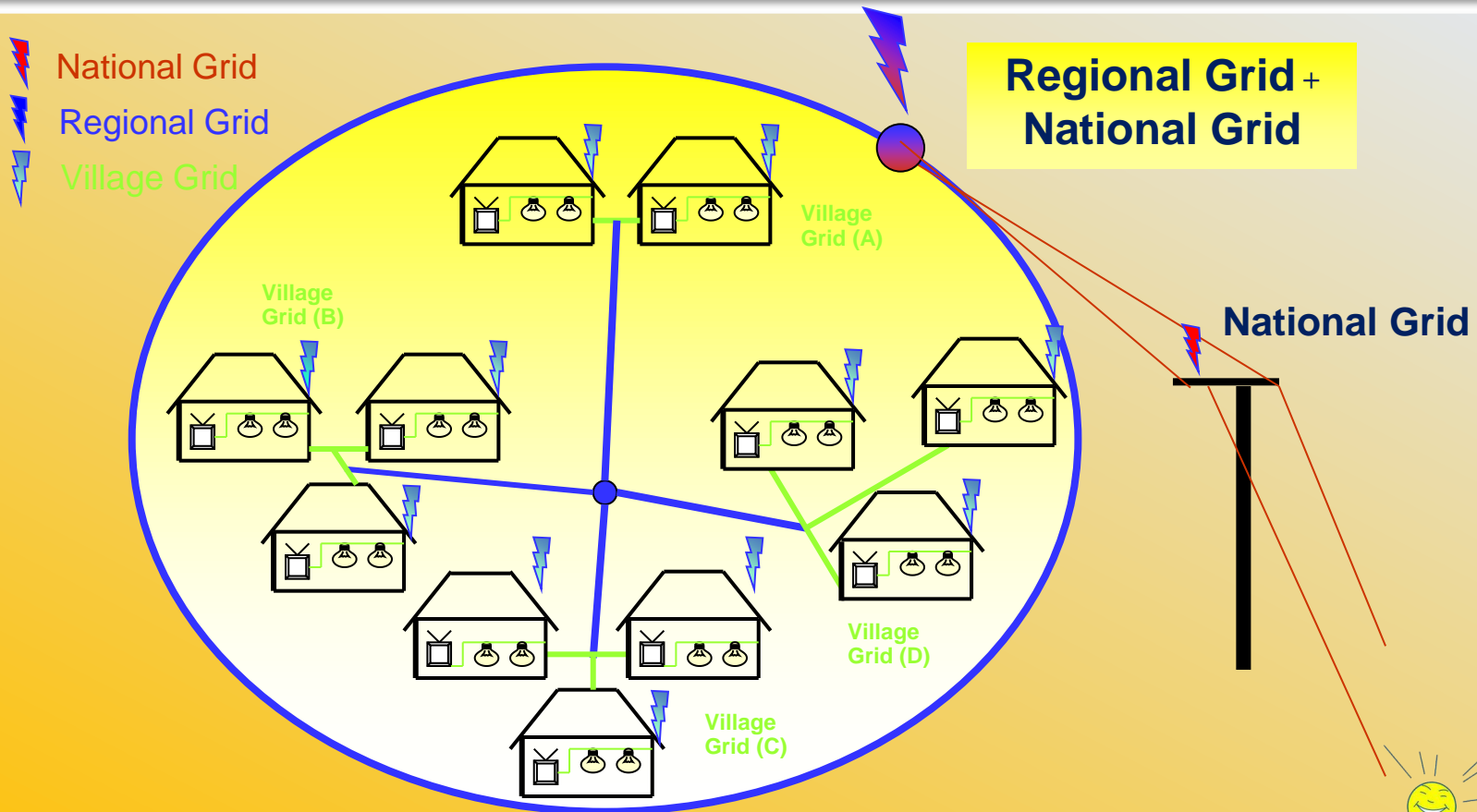
(But limited
load factor)

Nam Kha I Mini Grid: Challenges



- **Power demand of villagers didn't increase as expected**
 - Lesson: Consumption must increase over time for commercial viability
- **Customers angry about paying higher prices than grid**
 - Lesson: Comparable "on-grid vs. off-grid" rate needed; gap-filling subsidy can offer solution
- **Too much financial risk for IPP to solely own hardware**
 - Lesson: Private sector doesn't own hardware or infrastructure

Recommended Approach for Myanmar & ASEAN



Recommended Approach for Myanmar & ASEAN



- **Recommended approach:** three-way partnership between private sector (e.g. Sunlabob) + national government + international agency (e.g. IFC)
- **Establish 7-10 year concession window to fill pricing gap**
 - International agency provides subsidy to fill pricing gap
- **Ownership by national government**
- **Payment model:** Villagers pay village entrepreneur → entrepreneur pays Sunlabob → international agency subsidy fills price gap

Recommended Approach for Myanmar & ASEAN



Win-Win-Win-Win Situation

End-User get access to cheaper electricity through national subsidized utility prices

International Agency uses electricity as an entry point for rural development with lower input required by the villagers

Private Partner increases income through full utilization of generated energy

National utility get access to electrified regional grid

Questions for Discussion



- To what extent will international agencies be willing to provide subsidy to fill pricing gap?
- Will 7-10 year concession period provide enough time for villagers to be able afford rates (and eliminate gap-filling subsidy from international agency)?
- How rapid and aggressive is the Gov. of Myanmar's grid extension plan?
- Other questions from group?

Hybrid Mini Grids: Finding a Viable Model



**Thank
You**

