



ACEF 2021 Pacific Session

Decarbonized Energy Supply in Pacific Island Countries

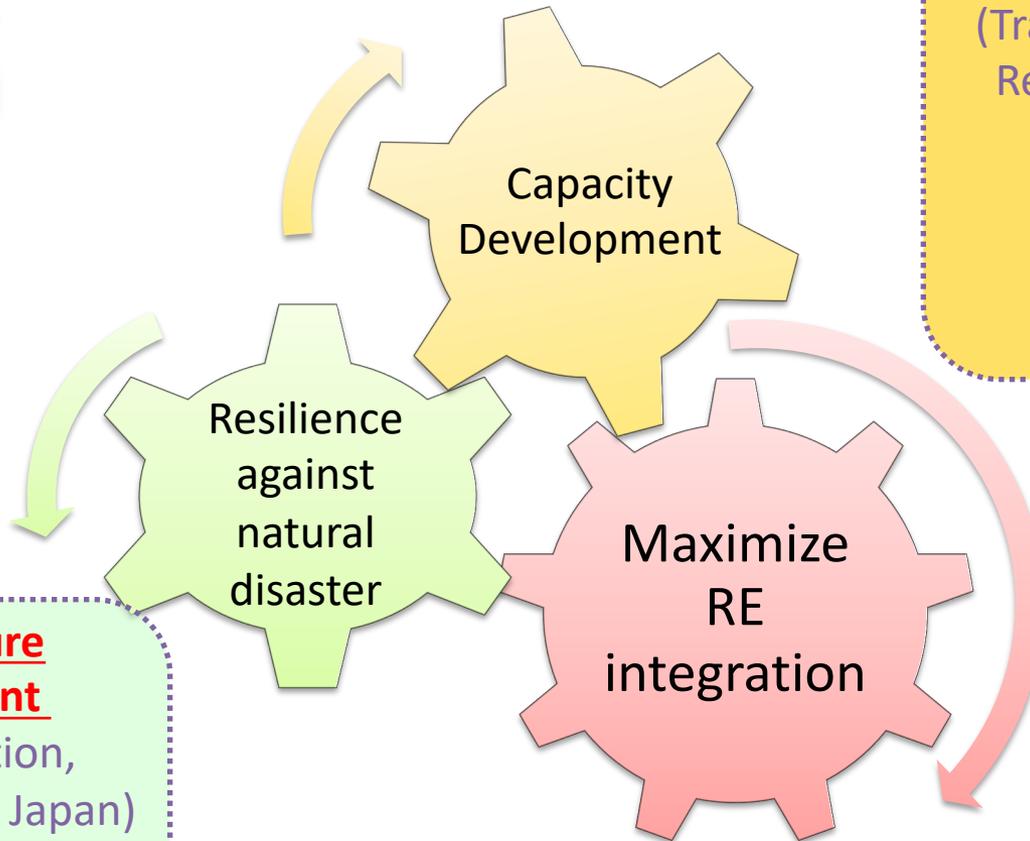
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Green Power Islands Program



Regional Approach

(Training Center & Resources in Fiji)



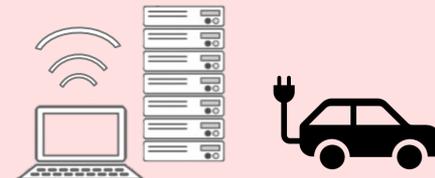
Infrastructure Management

(Early restoration, knowledge from Japan)



Grid Stabilization

(Demand Response, EMS, etc.)



Green Power Island Program

Renewable Energy and Diesel Power Operation in Small Islands (2017~) (Okinawa)

- Project on the Formulation of a Self-sufficient Energy Supply System (2015)
- Project for the Installation of Solar Electricity Generation System in Ebeye Island (2016~)
- Introduction of EV by Private Investments



The Project for Study on Upgrading and Maintenance of National Power Grid (2017~19)

The Project for Power Sector Improvement for the State of Kosrae (2016~19)



The Project for Introduction of Hybrid Power Generation System in PICs (2017~)

Development of Regional Training Hub in Fiji

- The Project for Formulating RE Roadmap (2018~21)

Promotion of Private Sector Investment

- Data Collection Survey on Power Sector in Espiritu Santo (2016~17)
- The Project for the Construction of Hydro Power Station in Espiritu Santo (2018~)



Power Sector Expansion Project (co-finance with ADB) (2017)



The Project for Installation of Wind Power Generation System (2017~19)



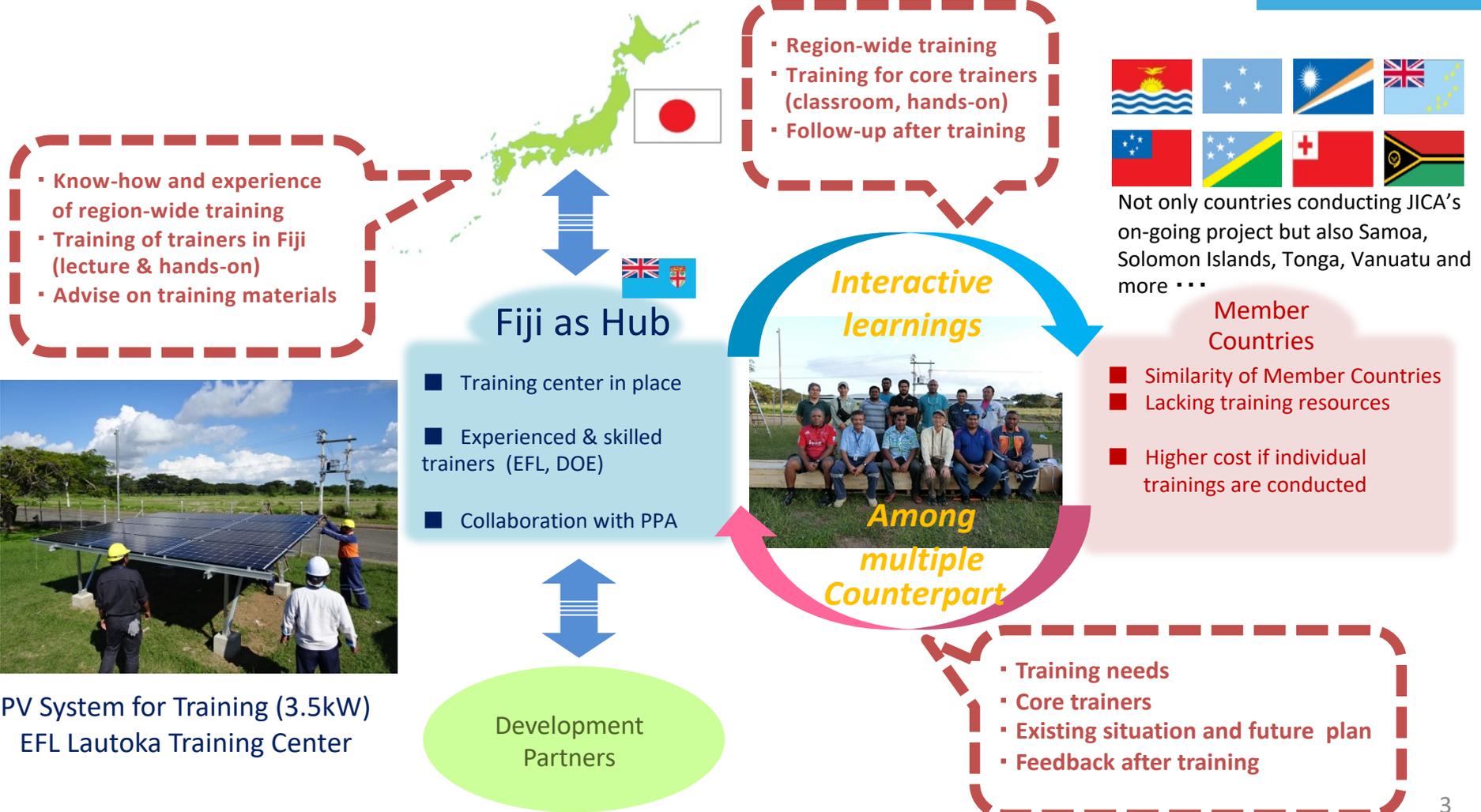
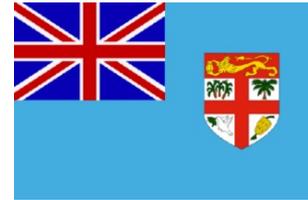
Information collection survey for improving energy security in the power sector in PICs (2015)

- Technical Cooperation (in blue)
- Grand Aid Project (including F/S) (in red)
- Others (soft loan, assistance for SME, information collection survey) (in green)

Counterpart Training in Fukushima, Japan in 2018

Concept of Region-wide Training

“Regional Center of Excellence” at EFL Lautoka Training Center



Not only countries conducting JICA's on-going project but also Samoa, Solomon Islands, Tonga, Vanuatu and more ...

Grid Stabilization for Maximum RE Integration

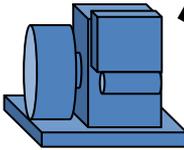
- Demand Forecast
- Economic Dispatch Control
- Frequency Control

RE Generation System

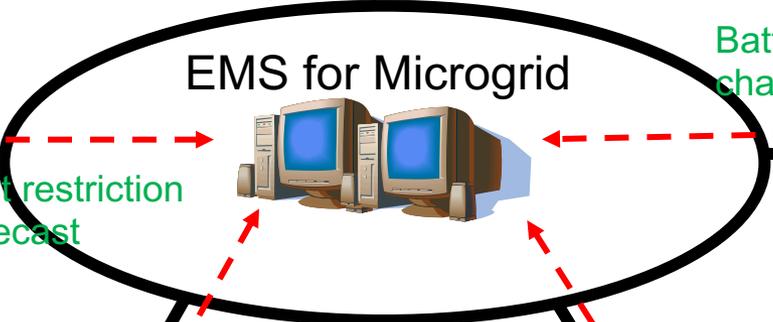


- Maximum Power Point Tracking (MPPT)

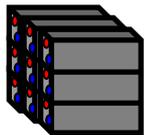
Diesel Engine Generators



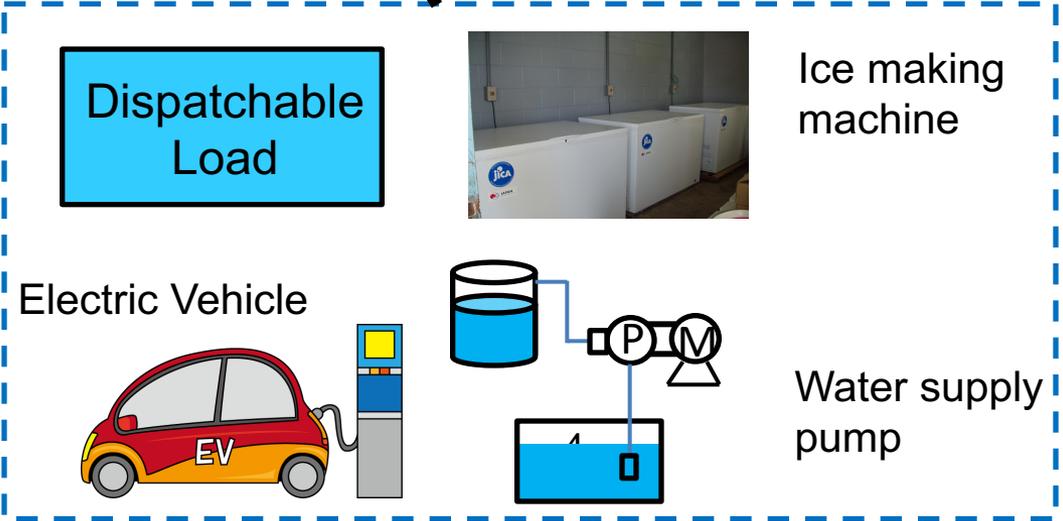
- Automatic Start/Stop
- Isochronous Control (GF/LFC)
- Optimization of unit power output & specific fuel consumption



Energy Storage (Short/Long-term)



- Battery charge/discharge
- Output fluctuation control (ΔP)
- Frequency fluctuation control (ΔF)
- Voltage / reactive power control



Output restriction & Forecast

Control & Supervision

Demand Response

Resilient Infrastructure Management

Plan

- Loop / double circuit configuration
- Underground cables

Design & Construction

- Robust foundation and structure
- Away from buildings & trees

Restoration after disaster

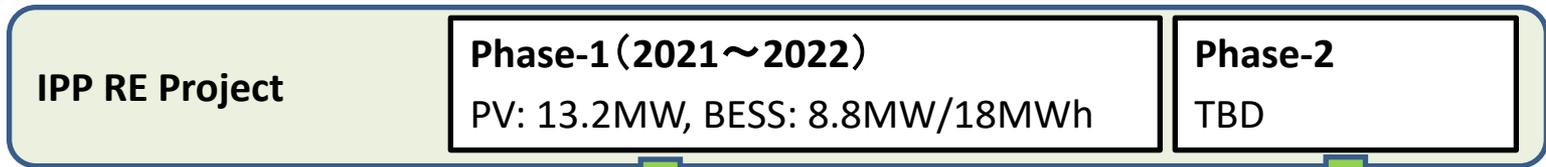
- Early restoration system (trainings, knowledge sharing)
- Emergency power supply (EV, Generator Vehicle)



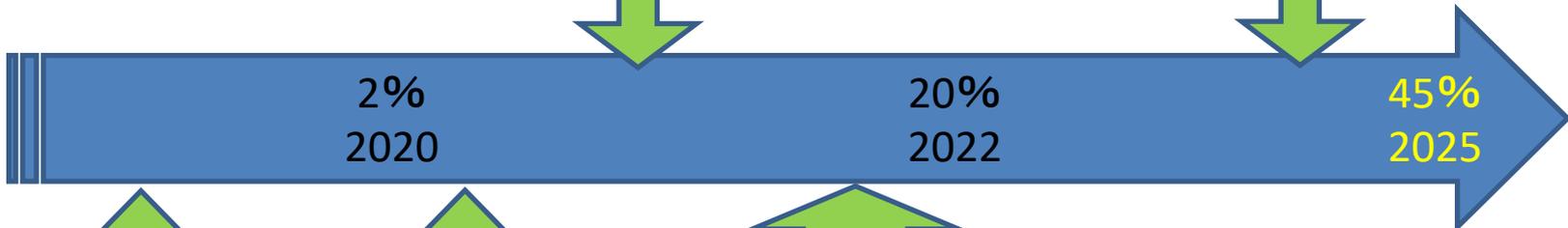
Solar Home System surviving TC (Tonga)



EV charged by Solar (Marshall)



Energy Road Map (2017)



(JICA) The Study on Upgrading and Maintenance Improvement of National Power Grid (2018~2019)
Establishment of Master Plan to achieve national RE target

Promotion of private sector investment

(JICA) The Project for Upgrading Power Grid (Grant)

(ADB) Transaction Advisory Service to PPUC: TA for bidding, procurement, installation and monitoring by IPP Contractor

(JICA) Regional Technical Cooperation Project (2018~2022)
Capacity Development for counterparts inviting Regional Training in Fiji

**THANK YOU VERY MUCH
FOR YOUR ATTENTION.**