

South Asia Hydromet Forum

18-20 September 2018
Geneva, Switzerland



Pathways of Regional Collaboration

Improving Climate Service Delivery through Modernization of PMD

by

Dr. Ghulam Rasul

PR of Pakistan with WMO

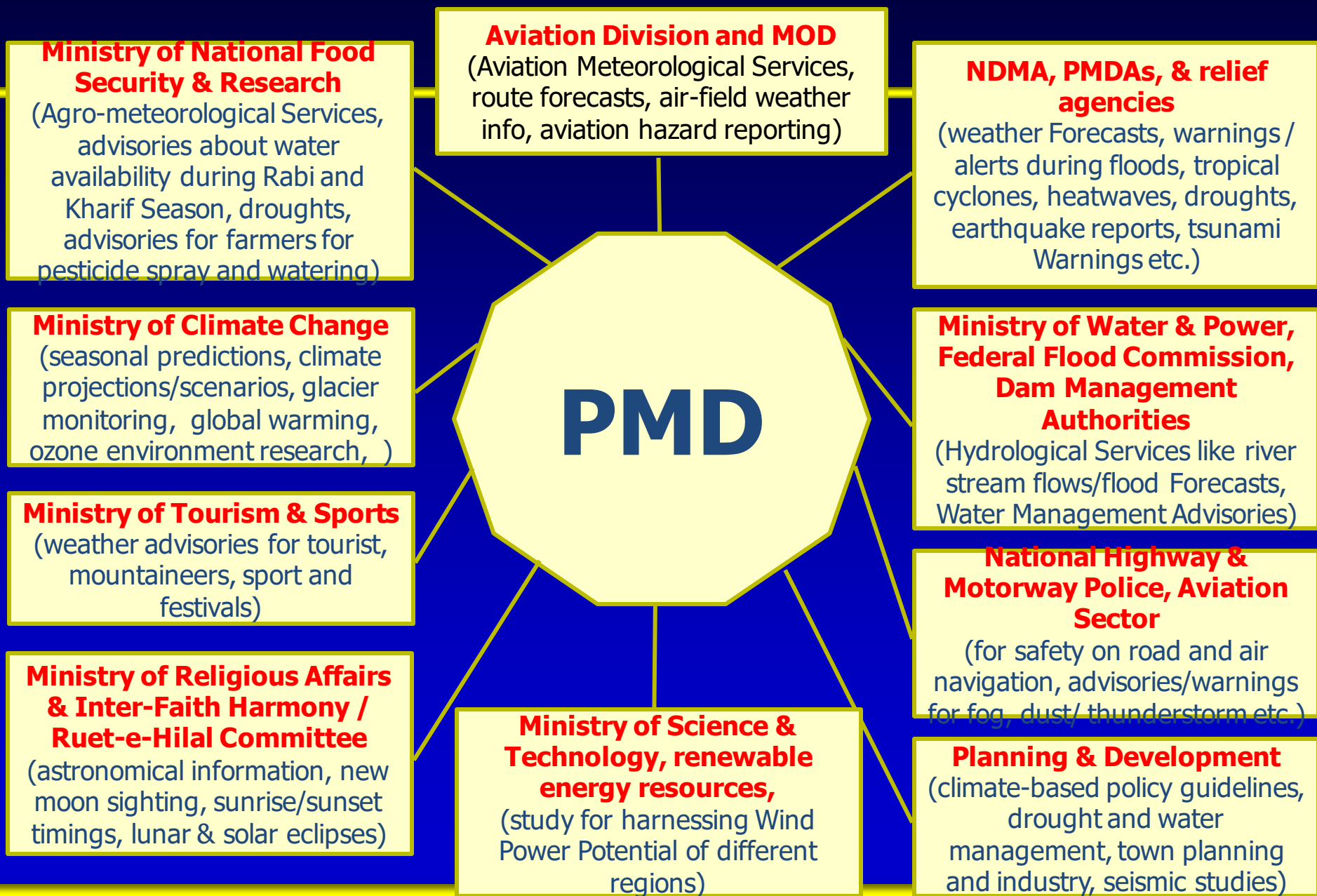
&

Director General PMD

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PMD Services for Ministries/Organizations



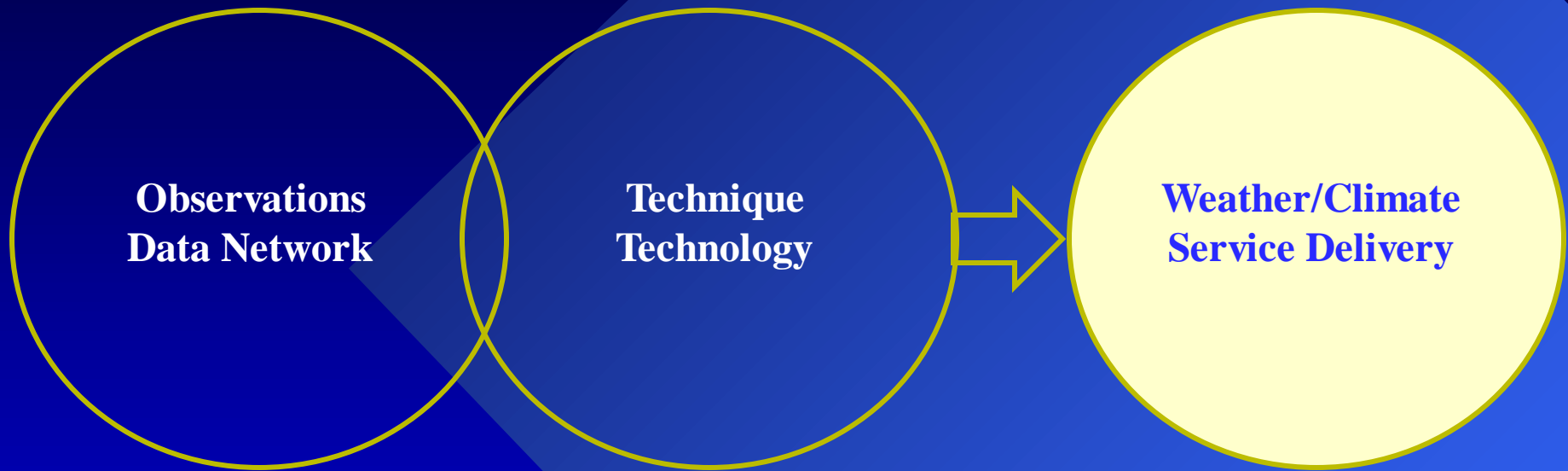
Strengthening of EWS of PMD

JICA Study-2012 – Objective (NDMP)

1. Formulation of National Disaster Management Plan;
2. Formulation of Human Resource Development Plan for Disaster Management and launching of human resource development training program based on the foregoing plan;
3. Formulation of an **Early Warning Plan** responding to **Major Disasters**. The Plan will identify high priority activities to be undertaken during the Plan period (2012-2022);
4. Implementation of Community Based Disaster Risk Management Pilot Projects in-cooperation with the community and local government;
5. Development of the cooperative systems/skills of relevant organizations, and enhancement of the capacity of the staff members based on the above process;

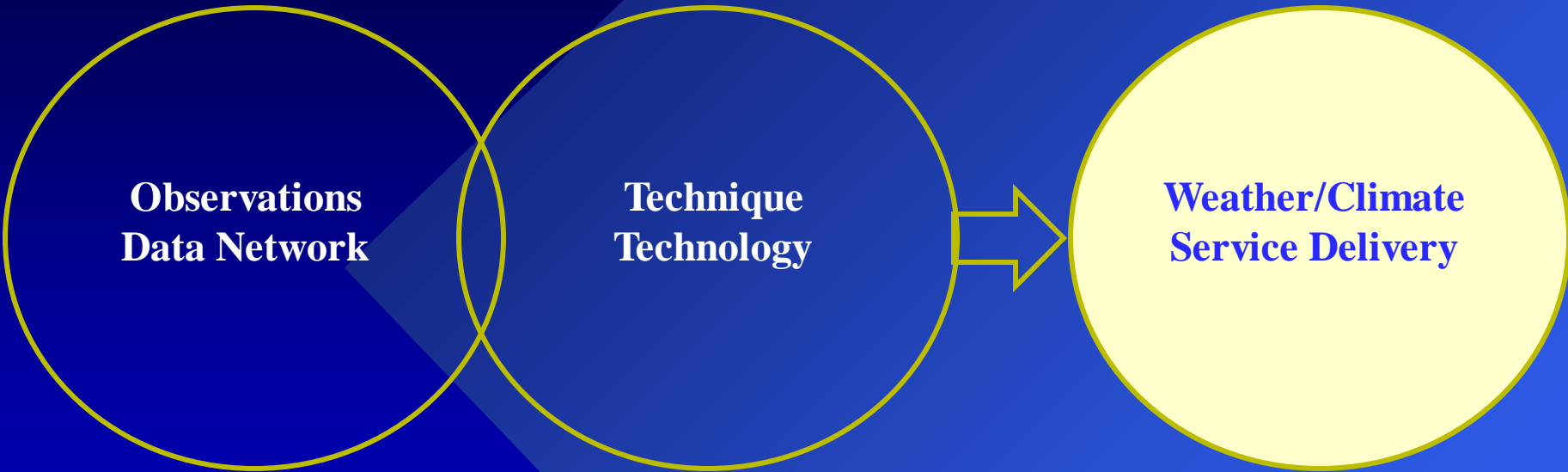
Strengthening of EWS of PMD

EWS of PMD



Strengthening of EWS of PMD

EWS of PMD



Surface Data

Met Obs, AWS, Rain Loggers

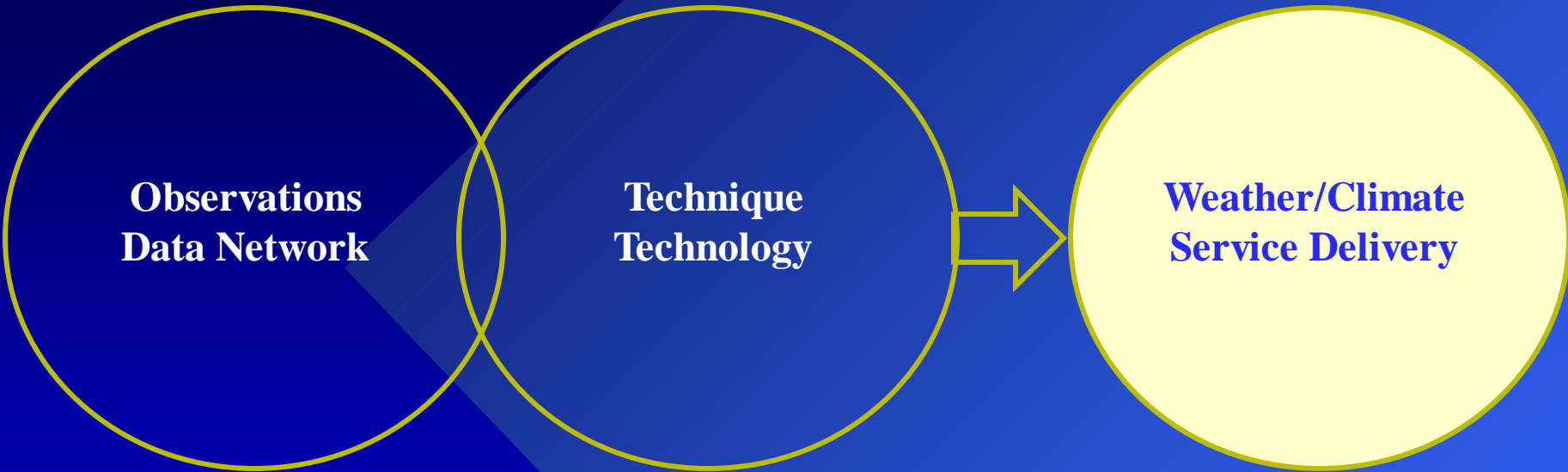
Atmosphere Data

Satellite, Radar, Wind Profilers/RS



Strengthening of EWS of PMD

EWS of PMD



Weather Modeling

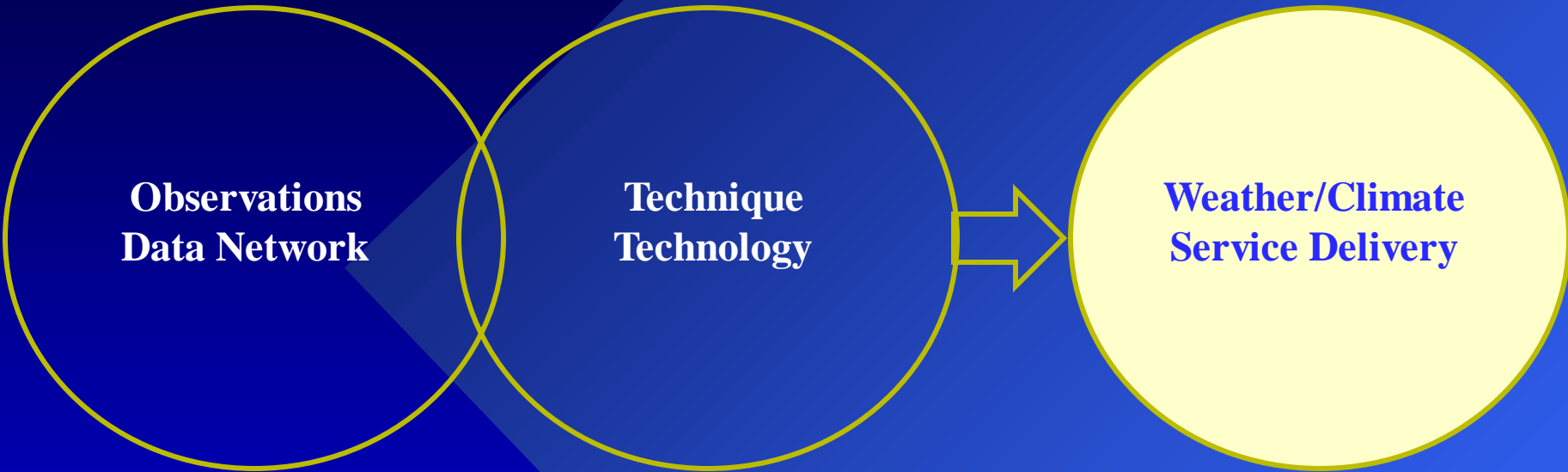
NWP Modeling, Hydrological Modeling

Data Processing

High Power Computers (HPC)

Strengthening of EWS of PMD

EWS of PMD

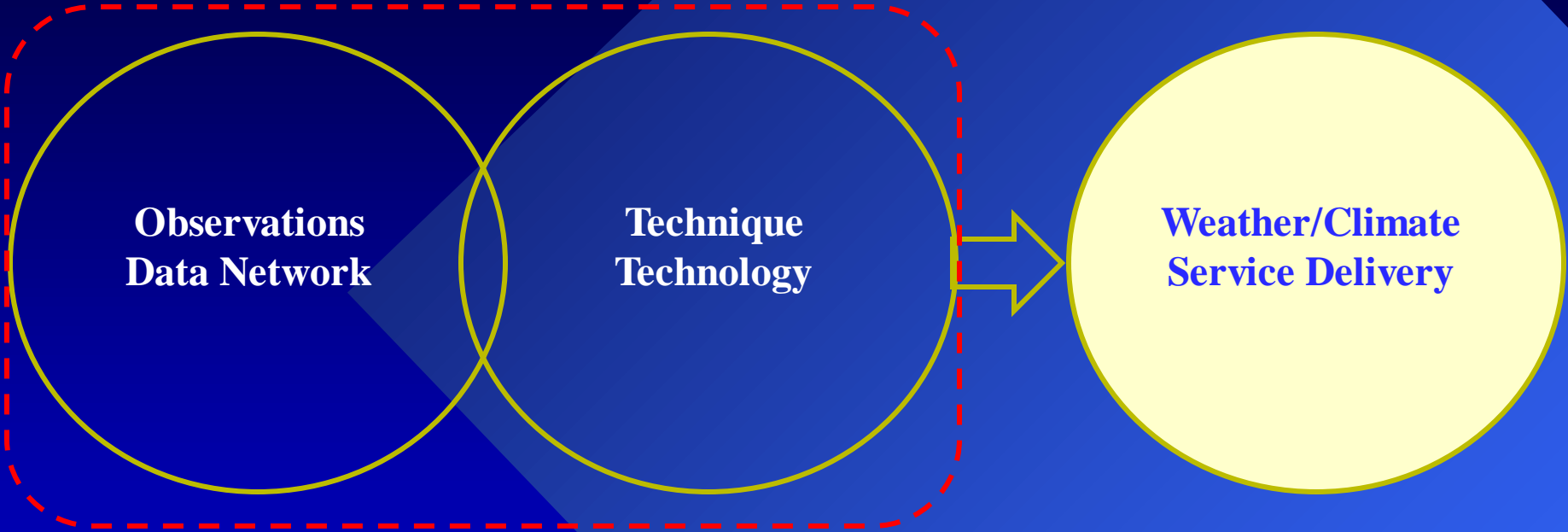


Service Delivery

- Regular Weather/Flood Forecasts
- Impact-based Forecasts
- Effective & Efficient EWS

Strengthening of EWS of PMD

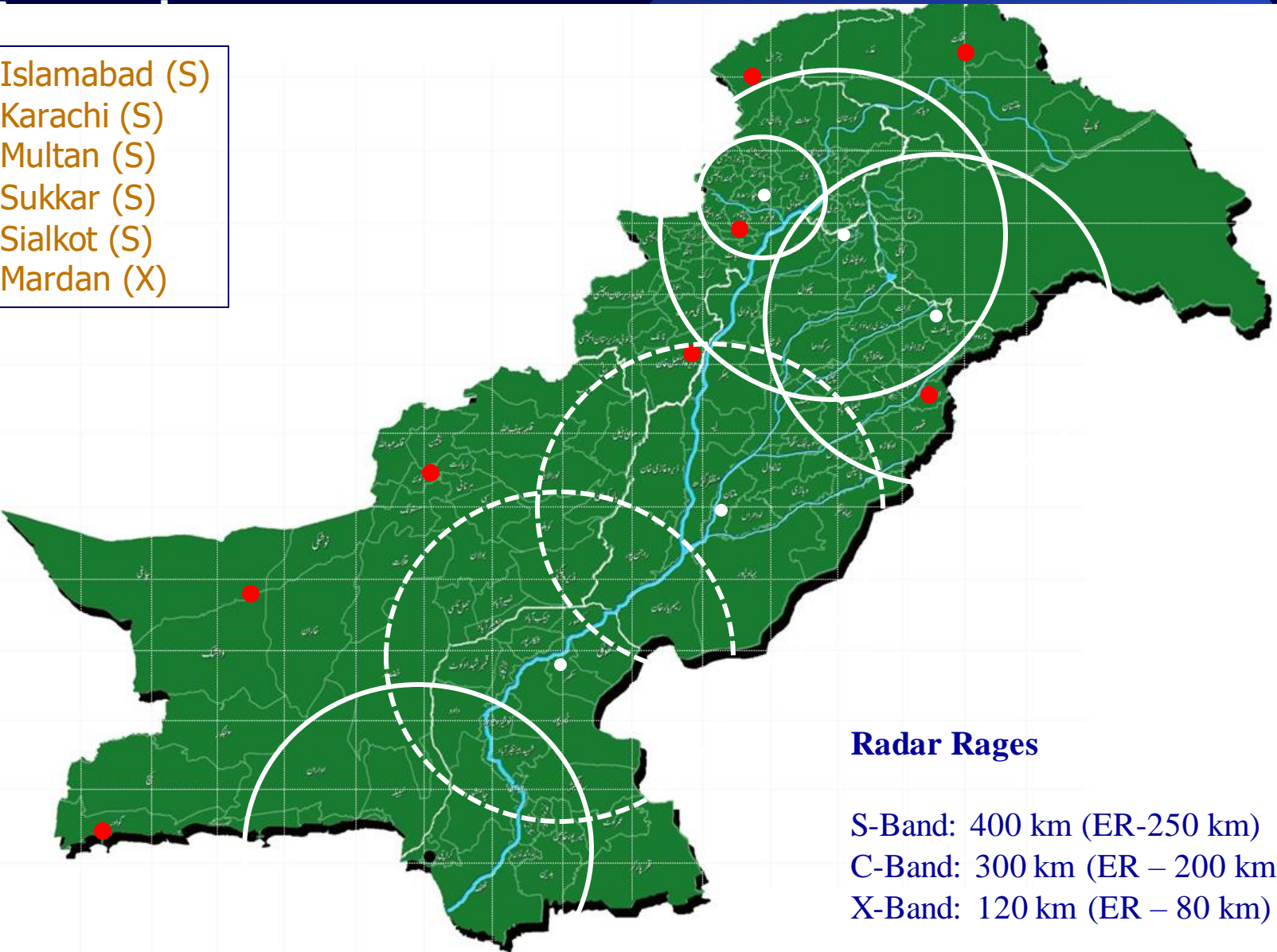
EWS of PMD



JICA: Improve & Enhance

| S.No | Items | |
|------|---|---|
| 1 | Up-gradation & Modernization of Observation /Forecasting System | Weather Radars |
| | | AWS and Rain Loggers |
| | | Wind Profilers & Upper Air Stations |
| | | Weather Observatories (New & Up-gradation) |
| | | FFD up-gradation-NFFD with HRPT and 4 RFFC |
| | | LFFFC & FFGS |
| | | GLOF |
| | | Seismic Network Up-gradation & TLG/HFR |
| 02 | Institutional Strengthening and Capacity Building | Refurbishment of Met-Workshop – Met Calibration Lab (MCL) |
| | | Data Communication and Dissemination System |
| | | Up-gradation of IMG |
| | | Capacity Building/Trainings |
| | | Climate Monitoring Centre (CMC) |
| 03 | PMU-Consultancy & Integration | Consultancy/End-to-end integration |
| | | PMU Cost |
| | | Estimated Cost |

- 1. Islamabad (S)
- 2. Karachi (S)
- 3. Multan (S)
- 4. Sukkar (S)
- 5. Sialkot (S)
- 6. Mardan (X)

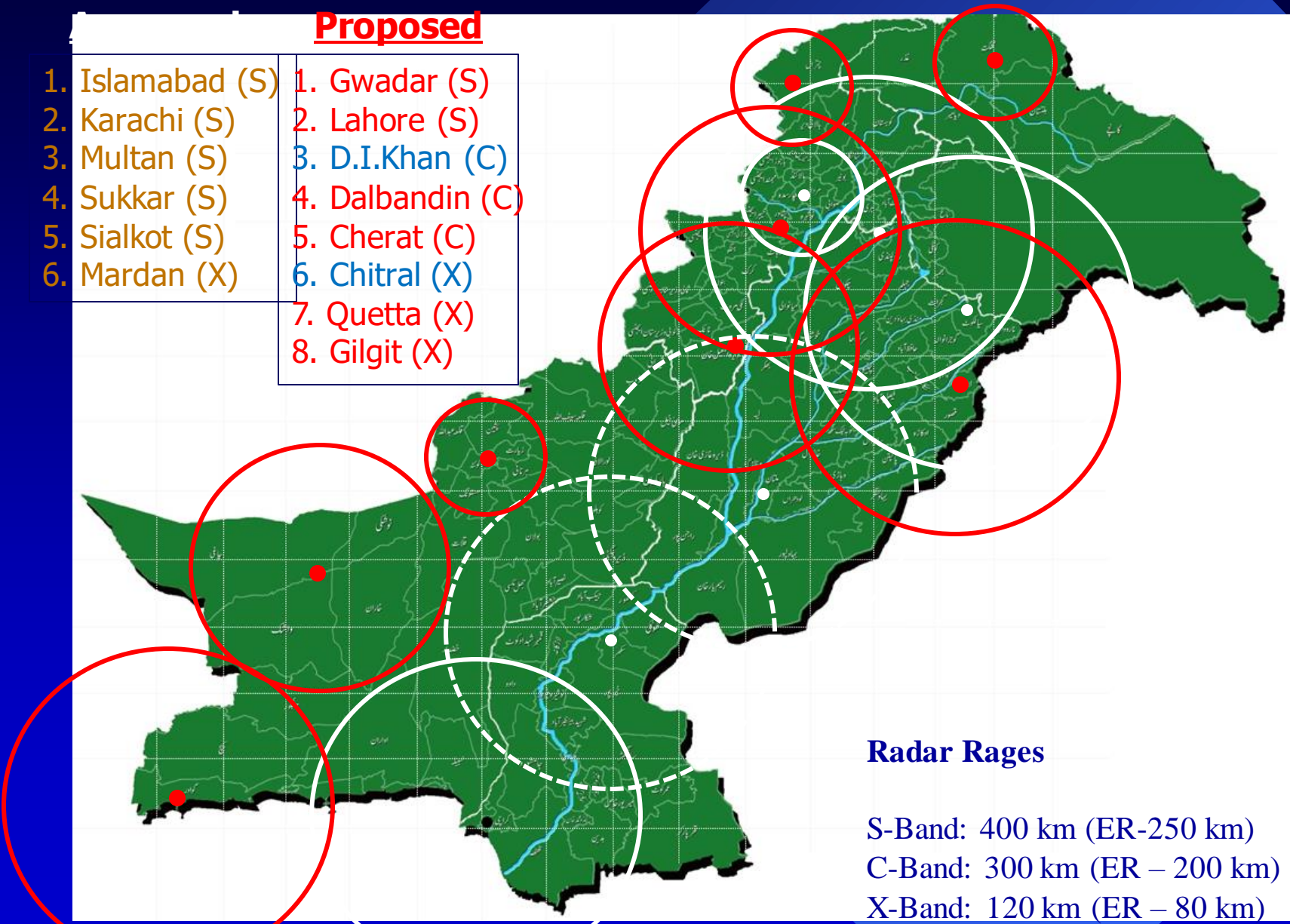


Radar Ranges

S-Band: 400 km (ER-250 km)
C-Band: 300 km (ER – 200 km)
X-Band: 120 km (ER – 80 km)

Proposed

- | | |
|------------------|------------------|
| 1. Islamabad (S) | 1. Gwadar (S) |
| 2. Karachi (S) | 2. Lahore (S) |
| 3. Multan (S) | 3. D.I.Khan (C) |
| 4. Sukkar (S) | 4. Dalbandin (C) |
| 5. Sialkot (S) | 5. Cherat (C) |
| 6. Mardan (X) | 6. Chitral (X) |
| | 7. Quetta (X) |
| | 8. Gilgit (X) |

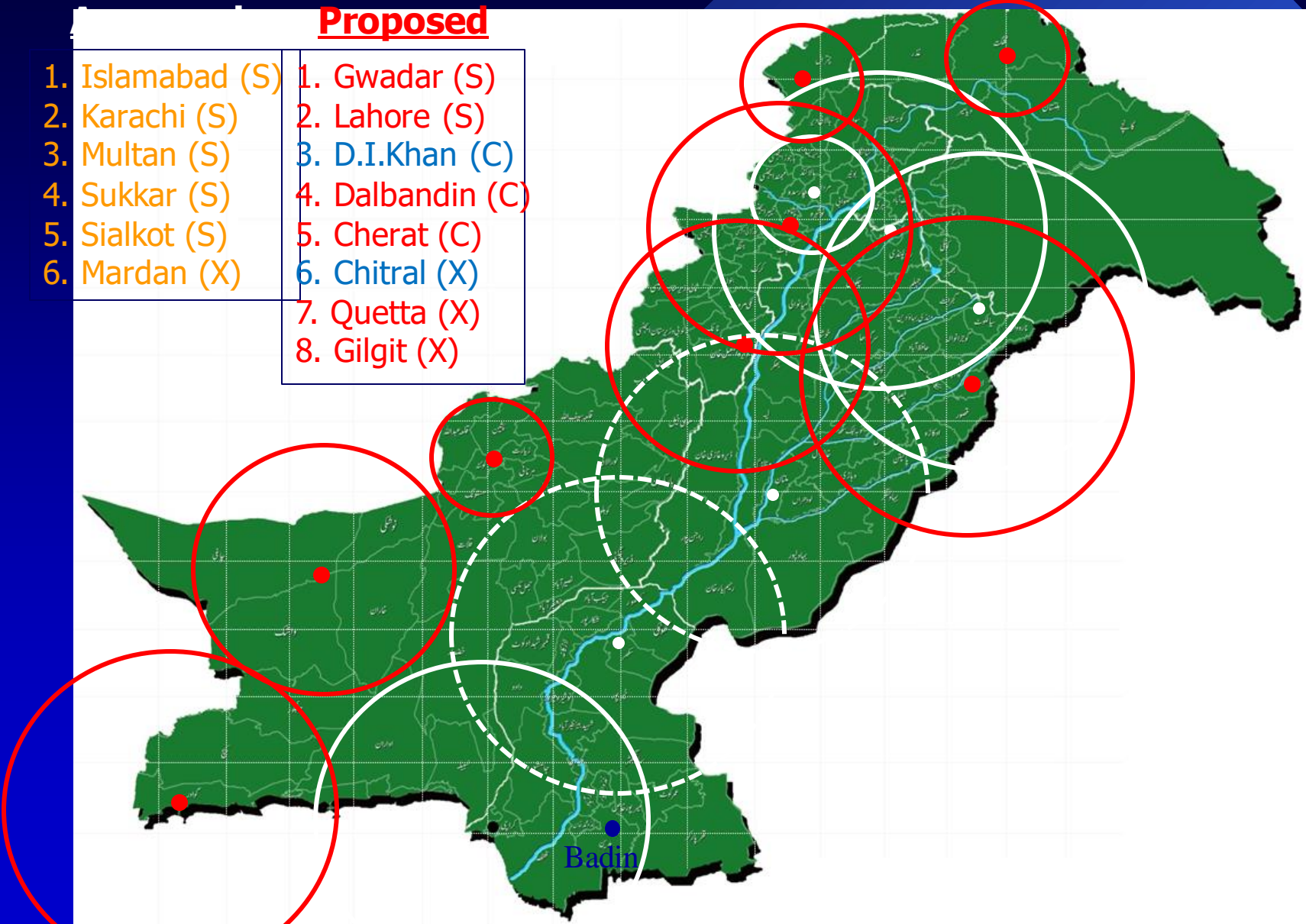


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| AWS | SR Rain Loggers |
|----------------|-----------------|
| 300+ 100 = 400 | 400 |

- Included “400 Rain Loggers” – Real Time Rainfall
- Dual Polarization Radars – No need of Calibration by AWS



| Wind Profilers | UAS |
|----------------|-----|
| 5 | 4 |

Total = 9

- 5 Wind Profilers (2 + 3) and 4 Upper Air Stations
- Duplication of W/P & UAS at Karachi (Cyclone Tracking) & Lahore (Monsoon Tracking)
- X-Band Radar at Quetta has wind-detection system

| Upgradation | New Observatories |
|-------------|-------------------|
| 97 | 40 |

- AWS in all counties
- Rain Loggers (400)
- Selection of Weather Observatories is based on “Climate/Geography”

| Central | Provincial |
|-------------------------------------|--|
| National Flood Forecasting Division | 5 Regional Flood Forecasting and Warning Centers |

- FFD will be up-graded to NFFD (National Flood Forecasting Division), with 5 RFFC (Peshawar, Karachi, Quetta, GB & AJK)
- High speed computing facility
- Hydromet Modeling

| WMO-FFGS | Telemetric |
|---|--|
| Expansion of WMO FFGS for South Asia to be implemented in the Region | Replication of JICA established EWS for Lai Nullah in Islamabad and Rawalpindi |

- WMO/USAID has already approved “Regional FFGS to Pakistan”
- Recorded & Satellite estimated rainfall.
- Use of NWP products in EWS

| Glacial Lakes | GLOF EWS |
|---|---|
| 3057 36 identified the most vulnerable | Green Climate Fund (GCF) approved funding |

- GCF has already approved GLOF-II

| Gaps | Proposed |
|--|--|
| <ul style="list-style-type: none">• Establishment of Tide Level Gauges (TLG)• Upgradation of Earthquake Monitoring system | <ul style="list-style-type: none">• Establishment of 20 GPS• Establishment of 100 Strong motion recording system• Replacement of old-tech with new-tech at 50 sites• 4 TLGs |

Strengthening of EWS of PMD

Estimated Cost

| Project | WB Loan (million \$) | PSDP (million \$) |
|----------------------|---------------------------------|------------------------------|
| Strengthening of EWS | 105.84 | 10.6 |
| | | |

Total Cost = \$ 115.90 m

THANKS