



# **Supply and delivery of Hardware and Software for an Automated Flash Flood Guidance System (FFGS) Bulletin in the Pakistan-Afghanistan Regional Flash Food Guidance System (PARFFGS) System**

## **ANNEX A – Technical Specifications**

*1 June 2024*

Project: “Development of Automated FFGS Bulletin in PARFFG System BMKG”

### **1. BACKGROUND INFORMATION**

In 2020, the Meteorological, Climatological, and Geophysical Agency (BMKG) has developed a derivative product of the Southeastern Asia-Oceania Flash Flood Guidance (SAOFFG) system which is presented in the form of a Bulletin. This Bulletin product contains maps of various SAOFFG parameters that can be used to quickly determine the potential for flash flood in an area. This product has been implemented operationally at BMKG with the distribution based on provinces in Indonesia and under implementation for the Central America Flash Flood Guidance System (CAFFGS) and the Haiti and Dominican Republic Flash Flood Guidance System (HDRFFGS). Based on discussions, the WMO and BMKG plan to develop Bulletin products for PARFFGS Member countries (Pakistan and Afghanistan). With this project, some hardware and software delivery and implementation are required to support the development and use of a service provision software product known as the “Bulletin for Flash flood Forecasting and warning”.

The FFGS Bulletin product will be developed in each Member country in the PARFFG region.

### **2. SCOPE OF SUPPLY**

1. Provision, delivery, and installation of a workstation for the system operator to manage the server and software.
2. Provision, delivery, and installation of a Windows server hardware for running the Bulletin software.
3. Provision, delivery, and installation of storage, network, security, power, and visualization hardware.

4. Provision and installation of various licenses and software for running the Bulletin software on the server and workstation.
5. 24-month Warranty for hardware and hotline services for installation, commissioning, testing, and aftersales.
6. Remote support services for minimum 24 hours for connecting the servers to the network during initial installation.
7. Delivery to the Pakistan Meteorology Department.

### 3. SPECIFICATIONS OF THE EQUIPMENT

Item	Name and Characteristics	Quantity	Compliance (Yes/No)
			*Remarks
1	<b>Server</b> <b>Processor</b> <ul style="list-style-type: none"> <li>Intel Xeon Gold 5317 3G, 12C/24T, 11.2GT/s, 18M Cache, Turbo, HT (150W) DDR4-2933 or equivalent</li> <li>Thermal Configuration: Heatsink configuration</li> <li>Configuration Type: Performance Optimized</li> <li>1.2TB 10K RPM SAS 12Gbps 512n</li> <li>2.5in Hot-plug Hard Drive</li> <li>Dual power supply</li> <li>DIMM Type and Speed: 3200MT/s RDIMMs</li> <li>Memory Capacity: 64GB RDIMM, 3200MT/s</li> </ul> <b>Cooling and Power:</b> <ul style="list-style-type: none"> <li>Fans: Standard Fan x7</li> <li>Power Supply: Dual, Fully Redundant (1+1), Hot-Plug</li> </ul>	1	
2	<b>Storage</b> <ul style="list-style-type: none"> <li>2x 1TB NVMe SSDs for OS and frequently accessed data</li> <li>6x 4TB 7.2K NL HDD for bulk storage</li> <li>RAID 5 or 6 for data redundancy and performance</li> <li>RAID Configuration: C7, Unconfigured RAID for HDDs or SSDs (Mixed Drive Types Allowed)</li> <li>RAID/Internal Storage Controllers: Front PERC H755 Front Load</li> </ul>	1	

	<ul style="list-style-type: none"> <li>Energy Configuration: Compliance with Energy Star, TCO Certification, EPEAT, or equivalent (at delivery point)</li> <li>1x 16Gb FC Card Adapter Pair</li> </ul>		
3	<b>Network Switch</b> <ul style="list-style-type: none"> <li>PoE</li> <li>24 ports 10/100/1000 mb ports shall be configurable as half duplex or full duplex to be suitable to be rack-mounted</li> <li>Hot swappable power supply</li> </ul>	1	
4	<b>Firewall</b> <b>Throughput:</b> <ul style="list-style-type: none"> <li>IPS Throughput <math>\geq 30</math> Gbps</li> <li>NGFW Throughput <math>\geq 25</math> Gbps</li> <li>Threat Protection Throughput <math>\geq 25</math> Gbps</li> </ul> <p>(All above throughput can be measured with Logging, Firewall, IPS and Application Control and Malware Protection enabled)</p> <b>Ports and interfaces:</b> <ul style="list-style-type: none"> <li>16 X Hardware Accelerated 10 GE / GE RJ45 Ports</li> <li>16 X Hardware Accelerated 25 GE SFP28 / 10 GE SFP+ / GE SFP Slots</li> <li>4 X Hardware Accelerated 100 GE QSFP28 / 40 GE QSFP+ Slots</li> <li>Hardware Accelerated 10 GE SFP+ / GE SFP HA Slots</li> <li>GE RJ45 Management Ports</li> <li>USB 3.0/3.1 Port</li> <li>Console RJ45 Port</li> </ul> <b>Security Features:</b> <ul style="list-style-type: none"> <li>UTM capabilities.</li> </ul>	1	

	<ul style="list-style-type: none"> <li>• Antivirus, Anti-SPAM, Web/Content Filter, intrusion prevention, and application control</li> <li>• SSL inspection</li> <li>• Geolocation site Blocking</li> <li>• Traffic Proxies support for HTTP, HTTPS, SMTP, FTP, DNS, TCP-UDP, POP3, SIP, H.323, Multi-WAN Support, Static NAT, Dynamic NAT</li> </ul> <p><b>VPN Capabilities:</b></p> <ul style="list-style-type: none"> <li>• Site-to-Site VPN</li> <li>• Remote Access VPN</li> </ul> <p><b>Management and Monitoring:</b></p> <ul style="list-style-type: none"> <li>• Logging and reporting features</li> <li>• Server Load Balancing feature</li> </ul> <p><b>Scalability:</b></p> <ul style="list-style-type: none"> <li>• Minimum 1000 number of users or devices supported</li> </ul> <p><b>Licensing and Support:</b></p> <ul style="list-style-type: none"> <li>• Provide with 3 years Licensing</li> </ul> <p><b>Compliance:</b></p> <ul style="list-style-type: none"> <li>• Firewall should be compliance with all the switches</li> </ul> <p><i>Please note that Support services (inc. License shall be provided for minimum 3 years)</i></p>		
5	<p><b>UPS-1</b></p> <ul style="list-style-type: none"> <li>• Rack-mountable</li> <li>• 3000W, 220V</li> <li>• 50/60Hz</li> <li>• Power management for battery service life</li> <li>• Efficiency min 95%</li> <li>• Above are minimum specs, Min 10 mins run time for the overall System (firewall, switch, server) is</li> </ul>	1	

	required. The Contractor shall provide their power calculation accordingly and demonstrate how the offered UPS will perform the minimum requirements.		
6	<b>UPS-2</b> <ul style="list-style-type: none"> <li>• 3000W, 220V</li> <li>• 50/60Hz</li> <li>• Power management for battery service life</li> <li>• Efficiency min 95%</li> <li>• Min 10 mins run time for the overall System for workstation</li> </ul>	1	
7	<b>Screen</b> <ul style="list-style-type: none"> <li>• 55-inches 4k UHD</li> <li>• HDMI interface</li> <li>• 220V</li> <li>• 50/60Hz</li> </ul>	1	

8	<b>Windows Server 2022 Standard</b>	1	
	<ul style="list-style-type: none"> <li>• Windows Server 2022 Standard CAL 16 Core License Pack + 5 CALS</li> <li>• Designed for businesses with more than 25 users and 50 devices</li> <li>• Run business-critical workloads in your datacenter, on cloud, and at the edge</li> <li>• Advanced multi-layer security against threats</li> <li>• Improved tools for hybrid-server management</li> <li>• 16 core license pack included, plus additional Client Access Licenses (CALs)</li> </ul>		
9	<b>Pro PDF programme (e.g. Nitro PDF or equivalent)</b>	1	
	<ul style="list-style-type: none"> <li>• Create PDFs and Combine Files</li> <li>• Convert Files to and from PDF</li> <li>• Edit PDF files</li> <li>• Review, Markup, and Annotate PDFs</li> <li>• Build and Fill PDF forms</li> <li>• Keep PDFs secure</li> <li>• Digitally Sign and Certify Documents</li> <li>• Cloud storage integrations</li> <li>• Customizable Ribbon Tab</li> <li>• Microsoft Office-like interface</li> <li>• Batch OCR &amp; edit OCR</li> <li>• Convert to Microsoft Excel and PowerPoint</li> <li>• Convert to PDF/A</li> <li>• Permissions: add and edit</li> <li>• Create and edit: Tables of Contents, bookmarks</li> <li>• PDF Portfolios</li> </ul>		

10	<b>Microsoft Office 2021 Pro</b>	1	
	<ul style="list-style-type: none"> <li>• One-time purchase scheme for 1 PC</li> <li>• Classic 2021 versions of Word, Excel, PowerPoint, and Outlook, as well as Publisher and Access</li> <li>• Includes Microsoft support for the first 60 days at no additional cost</li> <li>• Compatible with Windows 11 and Windows 10</li> <li>• Works with Microsoft Teams</li> </ul>		
11	<b>Workstation with Screen (24 inch)</b>	1	
	<ul style="list-style-type: none"> <li>• Intel Xeon W-1350P or equivalent</li> <li>• 32GB DDR4 2933MHz ECC UDIMM</li> <li>• 1TB Hard Drive 7200RPM 3.5"</li> <li>• 256GB Solid State Drive, 2.5 TLC OPAL</li> <li>• NVIDIA Quadro T1000-4GB or equivalent</li> <li>• Windows 10 Pro 64</li> <li>• 3 in 1 Card Reader</li> <li>• Slim DVD RW 9.0mm</li> <li>• Integrated Audio</li> <li>• Intel Wi-Fi 6 AX201 2x2 AX or equivalent</li> <li>• Bluetooth Version 5.0 vPro</li> <li>• USB Calliope Mouse &amp; Keyboard Black English</li> <li>• Tower 92% Power 500W</li> <li>• 376 mm x 170 mm x 315.35 mm , 9.4 kg with maximum configuration (without monitor)</li> <li>• 3 Years Support</li> </ul>		

**Notes:**

*\*) compliance must be confirmed in detail by the Contractor's offer and technical documentation and will be verified by WMO during technical evaluation;*

*\*\*) if not compliant with the WMO's required parameters, the Contractor must indicate his parameters in this column.*

- All hardware shall be provided with their connection and mounting tools, cables, connections, elements, etc.

- EOL and EOS device shall not be offered.

-System units will be installed by Pakistan Meteorological Department (PMD) staff on the server racks within the server room of PMD Headquarters. The Contractor shall provide hotline support for the installation process for a minimum of 24 hours during initial installation.

- The Contractor shall be responsible for the delivery to the addresses detailed in paragraph 4 and connecting the system to the LAN of PMD.

**- Offers without complete and detailed technical leaflets will not be considered. Only complete offers will be considered.**

#### 4. DELIVERY PLACE AND RELATED INFORMATION

One (1) set of each of the listed goods are to be delivered to BMKG:

##### DAP INCOTERMS 2020

Agency Name	Official Address
1. Pakistan Meteorological Department (PMD) Headquarters	Pakistan Meteorological Department, Pitras Bukhari Road, Sector H-8/2, Islamabad. Phone No: 051-9250367, 051-9250595

#### 5. STANDARDS

The certified Dell, HP, Lenovo (or equivalent) manufacturer and/or the Contractor shall meet the following:

- Unstable mains electricity
- ISO/IEC 27001: Information System Management (general)
- IEC 11801: Requirements for cabling
- IEC 60297: Mechanical requirements for IS, e.g. server rack
- IEC 60950: Power system requirements
- IEC 61000: EMC (electromagnetic compatibility), general requirements
- EU 617: Ecodesign requirements for offered IS
- IEC 62040: Requirements for power systems
- BS EN 62230: Requirements for cabling
- IEC297: For server racks
- ISO9001: Organization Quality Standards
- ANSI/ITA-568: IT lines and product requirements



- EIA-310: Server and server rack
- IP55: Protection class (server rack)
- CEE 7/7: Electricity requirements

## 6. TESTING

1. Temporary System acceptance test: in-situ at the work location.

- Hardware tests: checking if the provided hardware is compatible with the offered hardware, if the overall level of work (connections, cabling, etc.) is compliant, cabling tests, and power outage tests.

- Software tests: Software installation (Windows server, Nitro PDF or equivalent, Microsoft Office, Team Viewer), hardware performance tests, firewall and security tests, switching and routing tests, LAN and file transfer tests, and Log tests.

2. Reliability period (6 months).

3. Final Acceptance Test: Same as temporary acceptance tests to ensure the defects are corrected.

4. Factory tests: not required.

## 7. WARRANTY REQUIREMENTS

All items should be guaranteed for local support of a minimum period of 24 months including after-sales service from the date of delivery/installation.

The Contractor shall provide remote support minimum in 24 hours after a malfunction reported by PMD and shall provide replacement of the problematic equipment and interface device within 2 weeks.

## 8. TIMEFRAME AND DELIVERY PERIOD

The Goods shall be delivered to PMD DAP **within 3 months** from the date of the confirmed order.

## 9. CONTRACTOR QUALIFICATION REQUIREMENTS

- Previous experience with the supply of similar goods (at least 5 years)
- Contractor reference history, detailing their experience in supplying and delivering IT equipment

- Compliance with the Technical Specifications
- Compliance with the delivery terms and timeframe
- Complete Catalogues and information on the offered equipment, including origin of goods
- Be an authorized reseller of the required hardware and software
- The following sustainable requirements shall be met by the Contractor and/or by the manufacturer:
  - Environmental – Corporate environmental policy or an environmental management system (ISO 14001 or equivalent) in place.
  - Environmental – Products must hold a relevant energy efficiency label such as Energy Star, TCO Certification, EPEAT or equivalent.
  - Social – Demonstrated commitment to support gender equality and women’s empowerment through its operations, e.g. equal pay between men and women, opportunities for females to be empowered and promoted internally, paid parental leave policies for men and women, etc.
  - Economic – A policy in place on the sustainability and monitoring of the supply chain.

**Language Requirements:**

All required manuals and certificates shall be provided in English. Additionally, the Contractor is required to employ staff who shall communicate at a professional level and provide hotline support for assisting the installation, commissioning, and after-sales purposes.