

# PWD – Working on the future

Presented by  
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 Chief Engineer, PWD

তঃ প্রঃ (প্রকিউরমেন্ট) প্রিন্সিপাল প্রিন্সিপাল  
 নং..... পি/এ/প্রঃ প্রঃ/..... তার.....

- জমিদারি অবসতির জন্য শ্রেষণ করা হলো।
- বিধি মোতাবেক প্রয়োজনীয় ব্যবস্থা গ্রহণ করুন।
- সত্বে যোগদান করুন এবং কার্য বিবরণী অবহিত করুন।
- পত্রের মর্মানুসারে প্রতিবেদন পেশ করুন।
- তদন্ত করে মতামতসহ প্রতিবেদন দিন।
- পরীক্ষা করে পেশ করুন।
- দৃষ্টিভূক্ত করুন।

*(Signature)*  
 প্রধান প্রকৌশলী  
 নগপূর্ত অধিদপ্তর, ঢাকা

## PWD - History

PWD History Centralized public works in British India can be traced to efforts of **Lord Dalhousie** and **Sir Arthur Cotton** in the mid 19th century.

Public works have been almost entirely neglected throughout India.

The motto hitherto has been: **Do nothing, have nothing done, let nobody do anything. Bear any loss, let the people die of famine, let hundreds of lakhs be lost in revenue for want of water or roads, rather than do anything.** – Arthur Cotton (1854)

In the minutes of meeting held on **12 July 1854** the Governor General resolved that a central agency be provided by creating an office of Secretary to the Government of India in Department of Public Works ([Wikipedia](#))



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নির্বাহী প্রকৌশলীর কার্যালয়			
নগপূর্ত ই/এস এম জাি এস বিভাগ-১, ঢাকা।			
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# PWD - History

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•The country's buildings, roads, railways, telegraphs, electricity supply, water and sewerage, port and dockyards, local government infrastructure, were all at some time in the care of PWD

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With Solid foundation of more than 150 years of effective delivery and management of critical infrastructure projects for the country, PWD leverages this rich heritage as the advisor and enabler of the best possible infrastructure solutions for the future





PWD –  
Building  
on the  
Past

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Prestigious Buildings like Parliament premises, Secretariate, Banga-bahan, Chief Advisers office etc

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All government offices, residences and premises from central to local areas

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Supreme courts to local courts, Jails

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Residential and commercial buildings all over the country

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Medical Colleges and Hospitals

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Mosques and Religious Institutions

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PWD –  
Building  
on the  
Past

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Medical Colleges and Hospitals

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Stadiums, sports facilities

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City development like Mirpur, Dhanmondi,  
Agargaon

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Schools, colleges, universities like Dhaka,  
Ctg

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Religious and Cultural Infrastructures

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National Monuments, Historical  
Infrastructures

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Police, Fire stations, RAB, BDR

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Land Ports, customs house

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# PWD – Codes and Legislations

BNBC

PWAC

PWDC

Building Construction  
Regulations

Procurement Act

Accounts Acts and Law

Disciplinary Law

Any other government  
Laws and regulations  
for government  
employee

# Why Choose PWD



**Expert Professionals – Engineers, Architects, Planner and Arboriculturist**



**Network of Local Level Offices**



**Government relationships and knowledge**



**Help not to be distracted from Core Business of the departments, ministries for their special projects**

# Why Choose PWD



In house capability of projects inception, cost calculation, architectural design, technical designs, procurement procedure, implementation, operation and maintenance



Accredited for planning and delivery of capital works



Strong focus on safety, environment and quality management



Expert advisory, planning, delivery and support services to the clients



Simpler project completion and transition

# PWD - Whole of Government Role



Custodian of Presidential premises, Chief Advisors, Secretariate, Advisors Residence and Office, Courts, Jails and Government Buildings

Technical Advisor to the Government

Schedule of rates, Book of Specification

National Building Code, Standards, manuals

National Occasions

National and International procurements

Prequalification Schemes

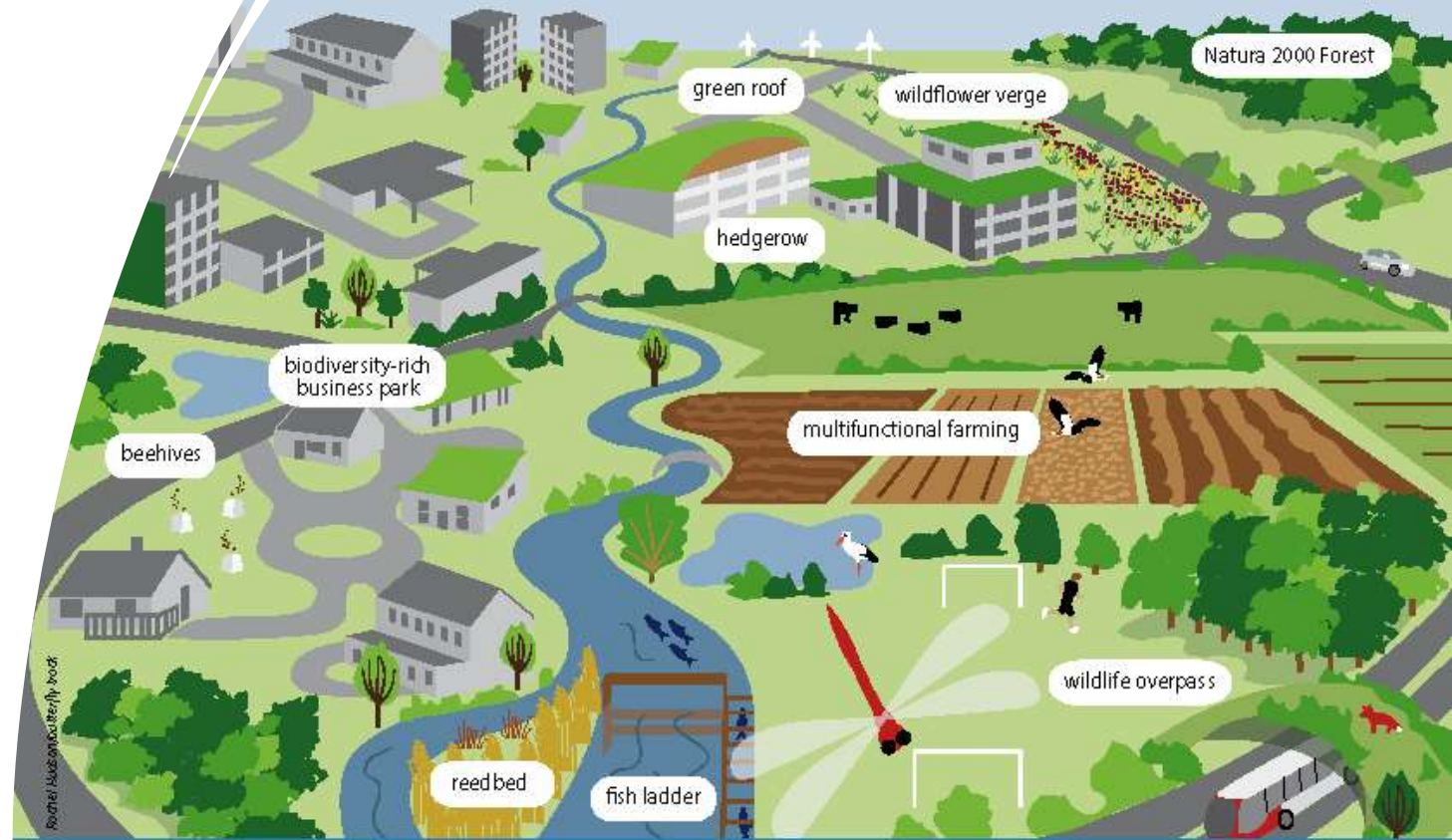
Licensing of Contractors

Valuation of infrastructures

Emergency management

# PWD – Infrastructure development Services

- Countrywide team of expert project managers
- In house structural, electrical, mechanical, plumbing, fire design units
- Development Project Plan team
- Coordination and Monitoring Team
- MIS and Procurement Team
- HR Management Team



## Potential components of a Green Infrastructure



Core areas of high biodiversity value which act as hubs for GI, such as protected areas like Natura 2000 sites



Core areas outside protected areas containing large healthy functioning ecosystems



Restored habitats that help reconnect or enhance existing natural areas, such as a restored reedbed or wild flower meadow



Natural features acting as wildlife corridors or stepping stones, like small watercourses, ponds, hedgerows, woodland strips



Artificial features that enhance ecosystem services or assist wildlife movement, such as eco-ducts or eco-bridges, fish ladders or green roofs



Buffer zones that are managed sustainably and help improve the general ecological quality and permeability of the landscape to biodiversity, e.g. wildlife-friendly farming



Multi-functional zones where compatible land uses can join forces to create land management combinations that support multiple land uses in the same spatial area, e.g. food production and recreation

# PWD – Infrastructure development Services



## Potential components of a Green Infrastructure



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Buffer zones that are managed and help improve the ecosystem services

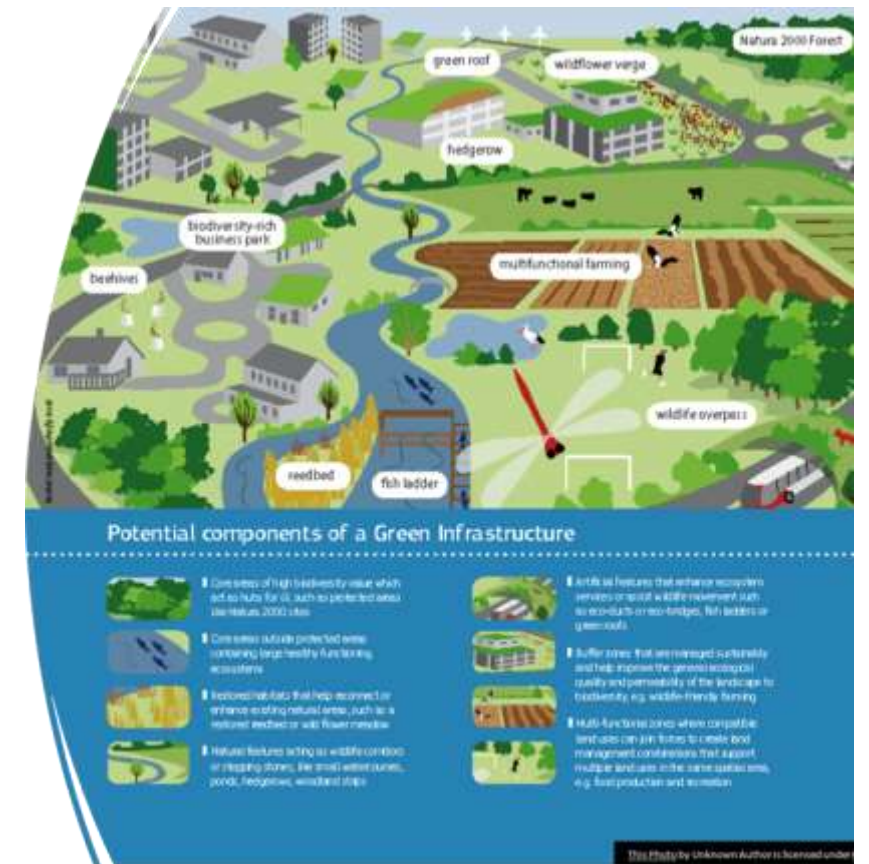
# PWD – Infrastructure development Services

- ✓ Specialist in government construction procurement
- ✓ Governance and Planning
- ✓ Design and Documentation
- ✓ Tendering and Engagement
- ✓ Risk allocation and manage risks
- ✓ collaborative contracting and cooperative principles
- ✓ Delivery and Commissioning



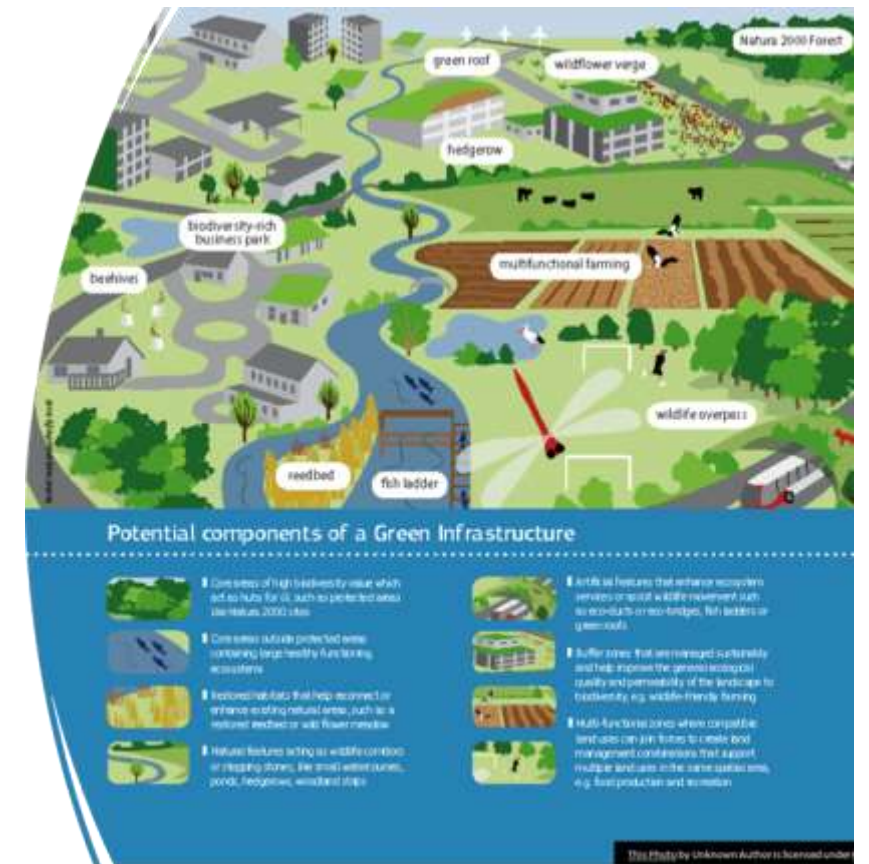
# PWD – New Infrastructure development Projects

- BNBC Enact Program in the whole country
- New Secretariate of Smart Government of Bangladesh
- One stop service - Integrated office in regional Bangladesh
- Village Eco Housing – Let's Save Land and Environment
- Resilience Buildings and Earthquake Preparedness for All Buildings of Dhaka, Chittagong and Khulna,
- Sustainable and Energy efficient Buildings in the country
- Green Roof for all Urban buildings
- Underground reservoir for Rainwater Harvesting and use
- Safe and Clean Construction Site for all Buildings



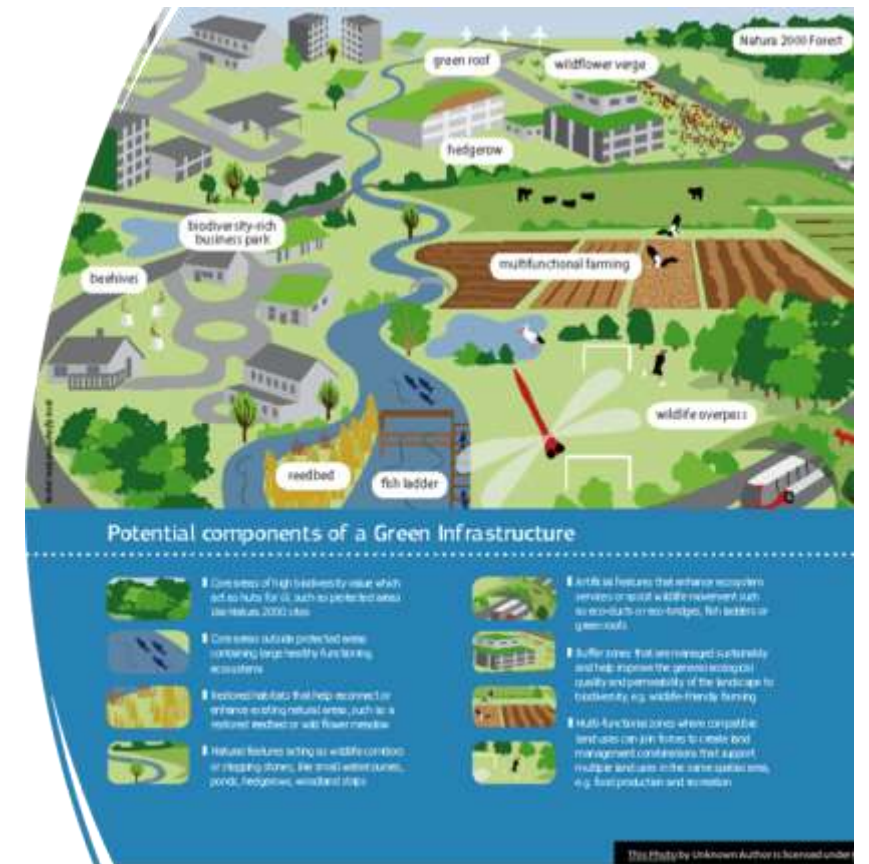
# PWD – New Infrastructure development Projects

- Rest area development in urban areas
- Green and Clean Dhaka
- Green Walk for People of Dhaka
- Urban street for the People of Dhaka, Chittagong and Khulna
- Water Sensitive Urban Design for Dhaka City
- 15 minutes walk city of Dhaka



# PWD – New Infrastructure development Projects

- Regional Bio City: Bio City in Faridpur, Madaripur, Gazipur, Tangail, Manikgonj, Chittagong, Khulna, Rajshahi, Cumilla, Noakhali
- New tourism infrastructure development in Bangladesh
- Save River – Safe Dhaka
- Modern Village Market



# PWD – New Infrastructure development Projects

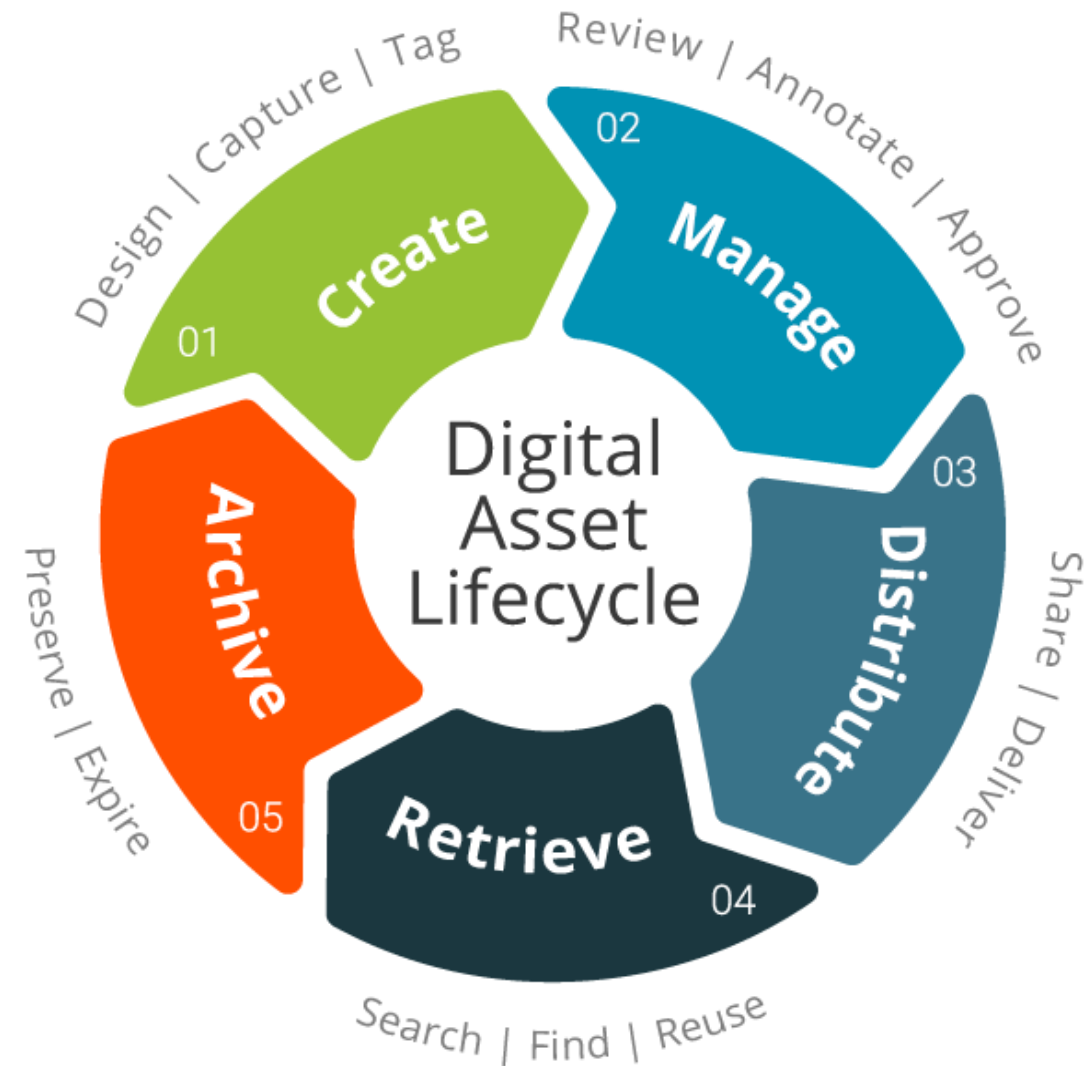
- Urban farming in Bangladesh
- Household waste management, energy and food production
- Reuse and exchange program of household clothing, electronics and home appliances





# PWD – Asset Management Services

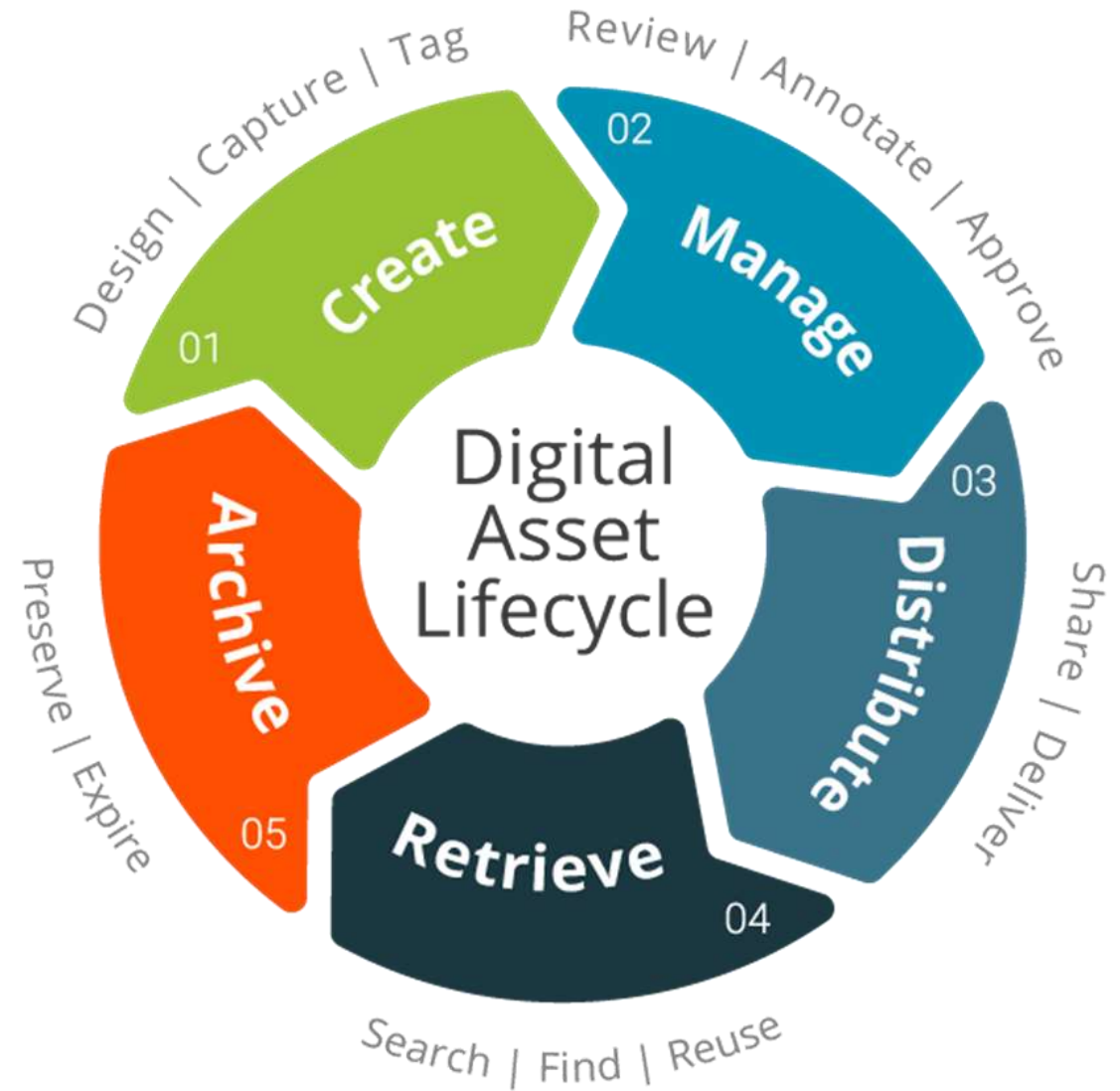
- Sustainable Asset Management: Condition assessment, repair and maintenance estimations, operational asset management plans, asset management financial plans, lifecycle planning, program and project management, prioritisation criteria
- Government Facilities Management Contracts
  - Preventive, statutory, routine and reactive maintenance
  - Programmed works
  - Cleaning contracts: five days per week, quality assurance inspection and on-site record
  - Security Contract: General security guards and mobile petrol, alarm monitoring and response



# PWD-Asset Management Services

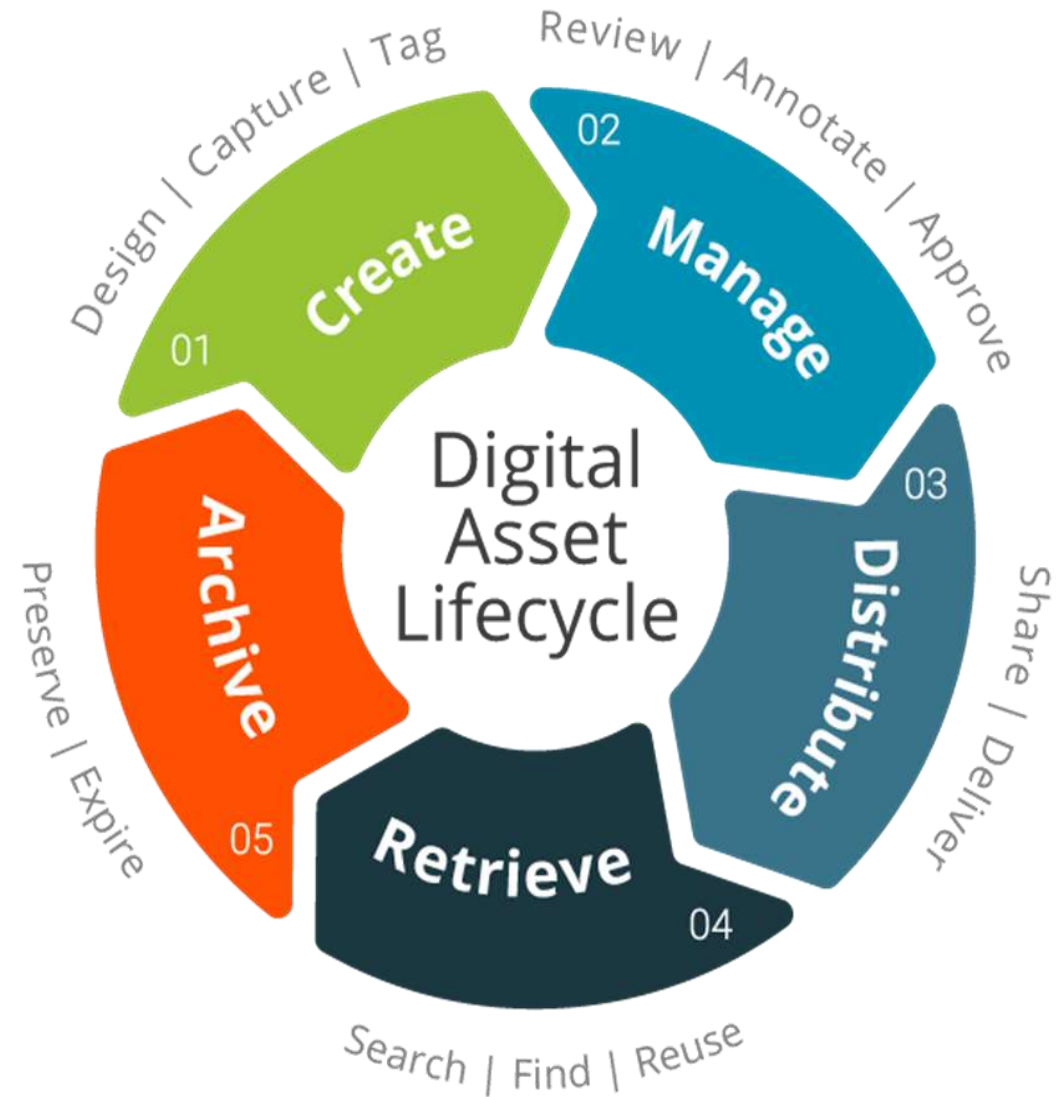
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- Plan Services
  - Digitization of drawings of public buildings and other infrastructures
- Heritage Buildings
  - Care, repair, management and compliance services



# PWD-Asset Management Services – **New Initiative**

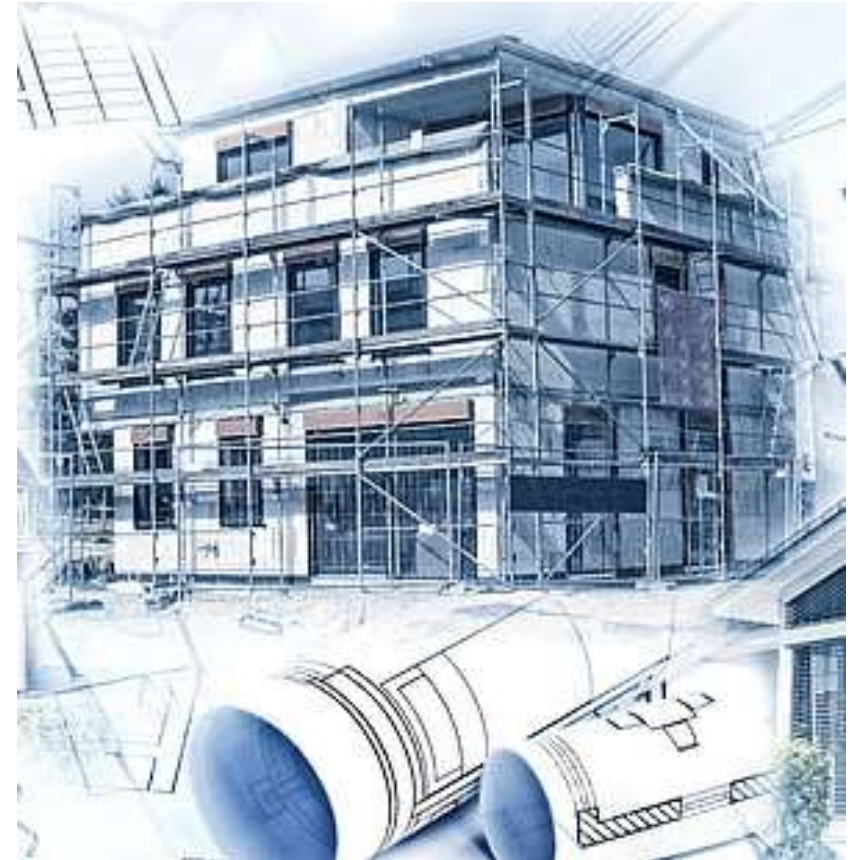
- New Asset management Plan
- Special asset management program for Secretariate premises
- Framework contract for asset management
- Clean Rest areas in Hospitals
- Hospital waste management
- Digital access control of Hospitals



# PWD-Digital Engineering and Design Services

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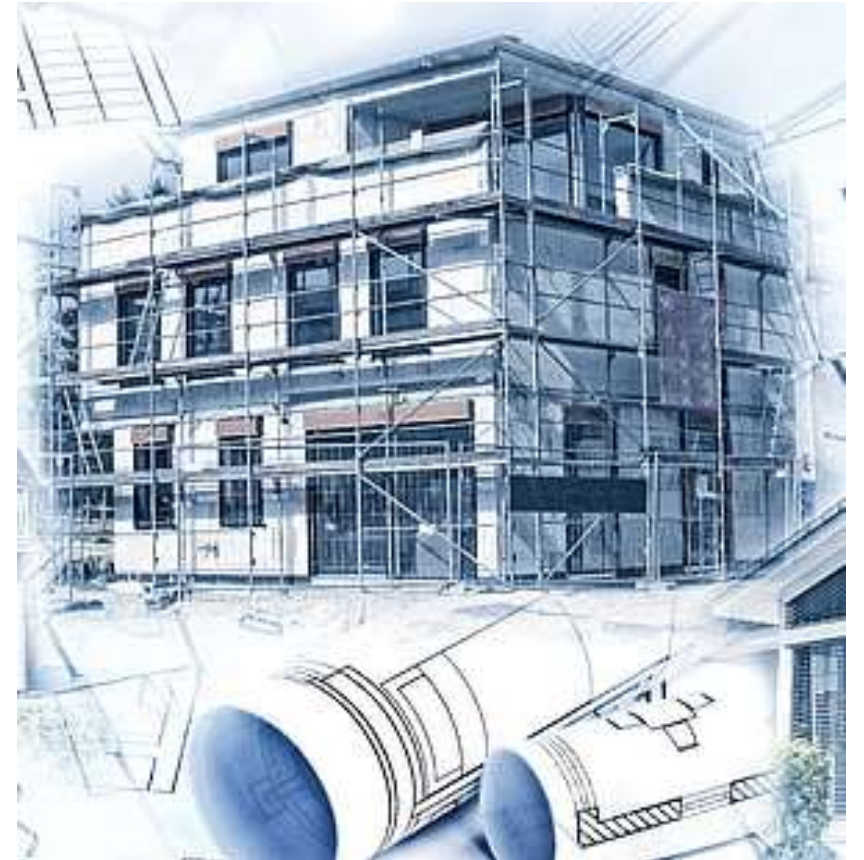
- Regional and Urban Planning of the whole country
- Existing city upgradation
- New City Development
- Architectural design
- Civil, mechanical, electrical design
- Design management and coordination
- Structural Design
- Traffic Engineering Solutions



# PWD-Digital Engineering and Design Services

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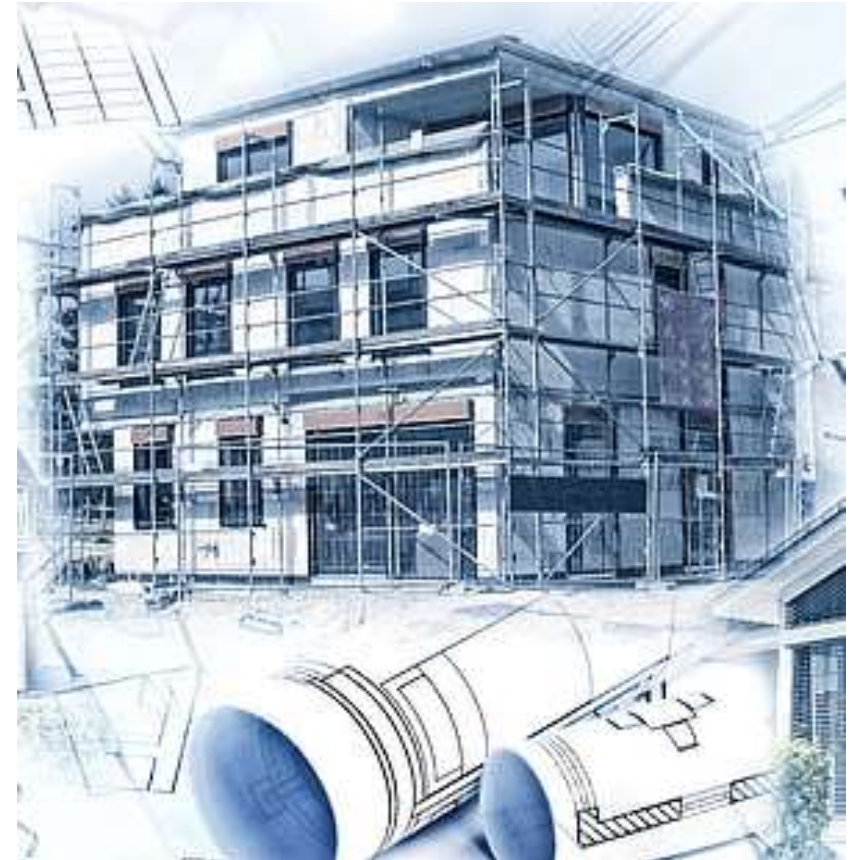
- Water and wastewater treatment plans
- Pipelines, rising mains and pump stations
- Earthworks including above ground storages, flood mitigation levees
- Infrastructure planning and upgrades
- Road geometric design and documentation
- Stormwater drainage with associated structures



# PWD-Digital Engineering and Design Services

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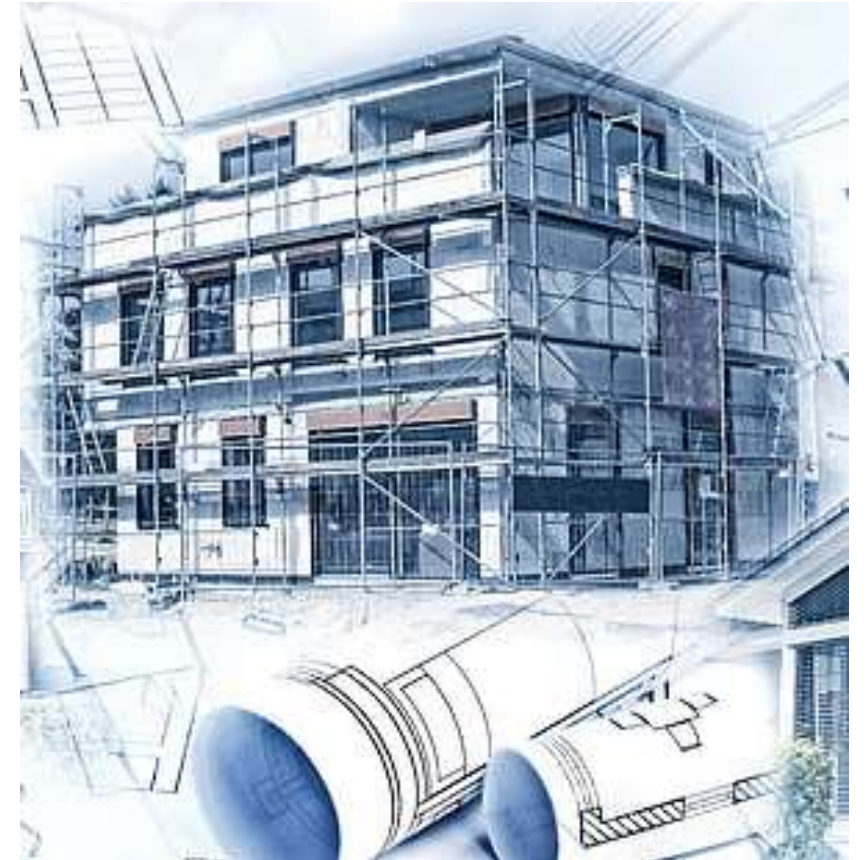
- Slope and riverbank stabilisation
- Utilities planning, coordination and clash detection
- Bim consulting and implementation
- 3D modelling and virtual simulation
- 3D terrain mapping with Civil 3D
- 3D renders and point cloud models
- Dam upgrades and spillways



# PWD-Software for Digital Engineering and Design Services

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- Autodesk Construction Cloud
- Planswift
- Revit
- Plant 3D
- Civil 3D
- AutoCAD
- Inventor
- Recap
- Navisworks
- Infraworks
- Advanced Steel
- Robot Structural Analysis
- Tekla Tedds
- Microstran
- ESRI ArcGIS



# PWD – Surveying and Urban Planning

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- Utility services and property investigation
- Topography and mapping survey
- Engineering and infrastructure surveys
- Laser scanning
- Subdivisions, strata and stratus
- Consultant engagement
- Control survey and least squares data analysis



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# PWD – Surveying and Urban Planning Services

- cadastral survey
- titling solutions
- land and easement acquisitions
- topographic and engineering survey, asset data capture
- terrestrial laser scanning
- bathymetric riverbed survey
- control surveys utilizing high end total station and GNSS solutions



# PWD – Surveying and Urban Planning Services

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- Surveying, property and spatial information for all including government and public
- Land acquisition and property services
- Team of Engineers, Registered Surveyor, Technical Surveyor and CAD operator



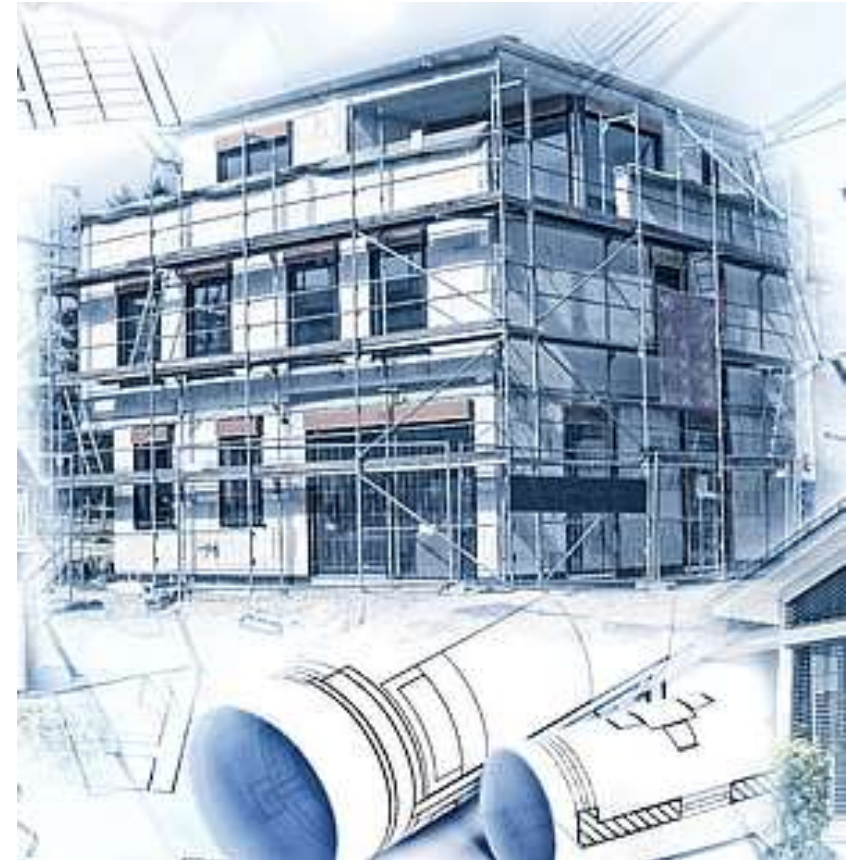
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# PWD-Software for Surveying and Urban Planning

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## Survey and Spatial Capability

- 3D Laser scanning and photogrammetry
- Survey management
- Survey preparation
- Laser Scanning
- Photogrammetry
- Data processing
- Survey QA processes and data checks
- Digital file and report preparation for delivery



# PWD-Environment and Sustainability Services

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- Clean and Green City
- Green Village – No waste of Land and Energy
- Waste, Water, Energy and Heritage Management
- Green and Sustainable Building



# PWD-Environment and Sustainability Services



- Environmental Planning
  - Environment planning, assessment and sustainability services and advice all types of government. Work collaborate with clients and stakeholders to facilitate efficiency, planning and approval level process with a particular focus on infrastructure and water related projects for government client
- Environmental Impact Assessment
  - For Public Infrastructure projects for heritage, cultural heritage, ecology and biodiversity conservation, water quality, noise, odour and traffic impact
- Waste management
  - Waste and resource recovery park
  - Household waste management
  - Waste generates power, fertilizer
- Wastewater
  - Wastewater collection, transportation, treatment and reuse systems
- Water supply and planning
  - Water supply and sewerage, drinking water management plans, recycled water management systems

# PWD-Environment and Sustainability Services

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- strategic asset management plan
- water efficiency and rainwater capture
- stormwater management
- treatment and discharge quality
- flood management program
- resilient infrastructure design and material selection
- riverbank stability works and rehabilitation to reduce flood risk
- effluent reuse and safe discharge of wastewater (example hospital reusing water from dialysis)



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# PWD-Environment and Sustainability Services

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- Renewable Power solutions
- solar and battery program
- lighting replacement program
- energy audits
- pilot program for trailing new technology
- electric vehicle infrastructure program
- electric system design optimisation
- strategic asset management plan



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# PWD-Environment and Sustainability Services

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- Sustainability and Climate Resilience Manager
- Electrical Engineers
- Mechanical Engineers
- Water Engineers
- Major development and Precinct Project Managers
- Heritage Architects
- Environmental Planners



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# PWD – Heritage Conservation

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- Heritage



# PWD – Training Services

- Professional engineers, architects, planners, project managers
- All employee of PWD
- Ministries regarding development projects
- Contractors
- Consultants
- Workers, Laborers, Electricians, Plumbers and other construction industry people
- Awareness of public works use and sustainability
- Development policy
- Construction Rules, Regulations, Codes and Standards



# PWD – Training Services

- Training Academy
- Zone, Circle, Division office
- PWDConnect app, Youtube videos, facebook, instagram
- TV, Radio



# PWD – Research and Development Services

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- New Ideas of development
- Modern Method of Construction (MMC)
- Off Site Construction
- Advanced design and architecture
- Future Bangladesh and Development
- International engineering journal
- International standards, codes



# PWD – Miscellaneous Services

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- Sub-soil Investigation
- Testing of materials



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# PWD - Restructuring and reform of existing system

- Restructuring Organization – include planners, architects, environmental specialist, botanists, biologists
- Reformed Legislatures – empowered to enforce “development law and building code”
- Implement Modern Method of Construction
- Implement OFFSITE construction
- Use new construction materials



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# PWD - Restructuring and reform of existing system

- Reformed Codes and Practices
- Reformed administrative and financial power
- Reformed accounting system
- Use high level of new software and digital technology
- Safety in construction



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# Conclusion

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- New PWD
  - New National Development
  - Sustainability and Resilience
  - Collaborative approach
  - Next Generation Bangladesh
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- Thank You

