



المختبر العمومي للتجارب والدراسات
LABORATOIRE PUBLIC D'ESSAIS ET D'ETUDES

Tests: Our business
Expertise: Our know how



Tests ■ Experiments ■ Search ■ expertise ■ Studies ■ Control

INTRODUCTION

Since 1947, date of its creation, the Laboratoire Public d'Essais et d'Etudes or « LPEE », public laboratory for trials and studies, actively contributes in main Moroccan great projects. It is a public entity since 1973, operating according to the by-laws of a business corporation, under the Ministry of Equipment and Transport tutelage.

LPEE offers its laboratory services in such areas as building, public works, environment and related industries. Its services cover the entire life cycle of various products and structures: design, completion, maintenance, rehabilitation, recycling and remediation of the negative impacts on environment. The end purpose of LPEE intervention is to obtain quality, safety and durability while protecting environment. Therefore LPEE contributes to sustainable construction.

With nearly 1000 staff members and a rate of supervisory posts higher than 25%, LPEE each year provides an important effort in training and workforce competencies development. Its experts and technicians figure among the top references in their specialization areas.

Further, LPEE is provided with cutting edge equipment and regularly make substantial investments dedicated to renew, complete and modernize its material.

The purposes of those investments are on one hand to meet the customers expectations demand increase in terms of service quality, and on the other hand, to anticipate the needs of a fast changing market.

LPEE is structured as an operational network of:

- *Ten (10) specialized centers in Casablanca:* dedicated to research, intervening on major projects, providing specialized services and technological assistance to professionals and LPEE regional network.
- *Twelve (12) regional and centres laboratories* covering all Morocco's regions, offering a proximity service in order to respond within the specified deadlines to professional expectations.

Trades :

- *Drilling, recognition, investigation and sample taking*
- *Trials in laboratory and in site, measurements, analysis, and calibrations*
- *Experimentation, modelization*
- *Controls, quality and performance assessments*
- *Studies, expertise*
- *Audits and technical inspections*
- *Consulting, technical assistance*
- *Research*
- *Training, knowledge spread*



AREAS OF COMPETENCY



Earth sciences

- Geology, geotechnic
- Geo-physic, Hydro-geology
- Soil and rock mechanics

Hydraulics

- Marine and fluvial
- Hydrography
- Industrial hydraulic
- Modelization
- Bathymetry

Environment

- Pollutions discharge and waste
- Impact studies
- Water quality
- Air quality

Materials and structures

- Properties and characteristics, durability
- Non destructive tests
- Formulation, rheological studies
- Trial boards, handle tests
- Experimentations
- Roadway mechanic
- Materials and structures resistance
- Pathology of structures, stability
- Reinforcement and rehabilitation

Industries

- Electricity
- Metallurgy, steel structures
- Apparatus and installations safety
- Packaging and conditioning
- Metrology

ACTIVITY FIELDS:



Geo-technical studies :

Buildings, transport infrastructures, civil engineering works, hydraulic, maritime, urban, and industrial made up, underground works, earthworks, stability, ground and rock reinforcements, borrowings and quarries prospection:

- Sites, project instruction
- Foundations, earthworks
- Roadway sizing
- Reinforcement, existing roadway enlargement
- Prospecting soil, borrowings and quarries
- Soils reinforcement, drainage, strengthening
- Slopes, sides and cofferdams stability
- Underground works, galleries, tunnels
- Canals, pipelines, collectors
- Giant soil mechanics tests, tests on massif rock
- Water testing
- Vibration impact
- Off shore drilling, submarine recognition
- Geophysical, hydro-geological recognitions
- Technical assistance for earthworks on difficult sites
- Tunnels and galleries sounding strengthening solutions

ACTIVITY FIELDS:



Buildings:

Residential, tertiary, administrative, school and university, industrial, socio-economic, collective, tourist facilities, towers, real estate complexes, plotted land, urban facilities, old frames and urban fabrics, historical...

- Preliminary studies for materials approval, equipment, installations and process...
- Concrete formulation studies, mortar and special mixtures
- Quality controls for materials, and works
- Provision of worksite laboratory, for external controls and exterior controls
- Non destructive checks of deep foundations, massifs and structures
- Structures, secondary plots and technical equipment receipt tests
- Expertise regarding structures, secondary plots, finishing and technical equipment
- Pathological, on carrying ability, reinforcement and rises expertise
- Old and historical urban fabrics building rehabilitation studies
- Seismic risk vulnerability study
- Technical assessment of innovative products and processes
- Technical assessment of integrated performances
- Certification, labeling.

ACTIVITY FIELDS:



Transport Infrastructures:

Roads, highways, railways, airfields, earthworks, platforms, ways, divers systems, linear, civil engineering works...

- Approval tests for soils, materials, equipment, installation and process
- Formulation studies for hydrocarbon, hydraulic and special mixtures
- Rheological handle studies for hydrocarbon mixtures
- Monitoring of witness and experimental trial boards
- Verification and setting of crushing and coating stations
- Quality controls for materials and works
- Provision of worksite laboratory for external controls and exterior controls
- Horizontal road signs controls.
- Earthworks platform controls
- Assessment studies on roadways and annexes state degradation
- Sounding tests on roadways, profiles analysis
- Roadways core drilling and sawing
- Expert advice and consulting on technical risks

ACTIVITY FIELDS:



Civil engineering works:

Bridges, scuppers, reservoirs, stations, stadiums, tunnels, collectors, reinforcements, silos, exceptional structures ...

- Preliminary approval tests for materials, equipment, installations and process...
- Studies on the rheological, formulation of concrete, pouring, injections and special products
- Studies on concrete durability, alkali reaction qualification
- Quality controls for materials and works
- Provision of worksite laboratory for external controls and exterior controls
- Non destructive checks of deep foundations, massif and structures
- Load tests, structures and equipments receipt tests
- Pathological expertise of structures and equipments
- Expertise on carrying capacity, reinforcement, widening and rises ...
- Studies on the rehabilitation of bridges, old and historical structures
- Assessment Studies on structure and corresponding equipment state degradation
- Core sampling of test tubes for tests
- Tests on carbonatation, corrosion, and chemical attack
- Monitoring of repair work and technical assistance
- Technical evaluations of innovative products and processes
- Assets management information system

ACTIVITY FIELDS:



Hydraulic and maritime structures and facilities:

Ports, harbours dams, irrigation areas, drinking water supply, sanitation, docks, bank protection, canals, pipelines, dikes, rural engineering, offshore construction, estuaries, marinas ...

- Preliminary approval tests for materials, equipment, installations and process...
- Studies on the rheological, formulation of concrete, pouring, injections and special products
- Concrete durability and alkali reaction qualifications studies
- Quality controls on manufacture, constitution, and implementation of materials
- Monitoring of witness and experimental trial boards
- Verification and setting of crushing and mixing stations
- Quality controls on materials and accomplished works
- Provision of worksite laboratory for external controls and exterior controls
- Tests on riprap and gabionage
- Tests on pipelines made of concrete or other materials
- Tests on prefabricated concrete elements
- Non destructive checks of deep foundations, massifs and structures
- Receipt tests of structures, components and technical equipment
- Pathological expertise on materials, structures and equipments
- Structures and equipments rehabilitation studies
- Structure's sounding and instrumentation
- Assessment Studies on the state of structure and corresponding equipment degradation
- Asset management and maintenance information system

ACTIVITY FIELDS:



Hydraulics

- Bathymetry and oceanography
- Studies on reduced models of ports, overflow and protection systems
- Studies on sand silting, coastline and banks protection
- Expertise on marine fenders, dockside stability, navigability...
- Water flow studies

Environment, pollution

- Sampling and analysis of water quality
- Water treatment studies
- Sampling and analysis of ambient air quality
- Pollution characterization (water, air, soil, waste, discharges)
- Environmental impact studies
- Environmental audits

Electricity

- Tests on electrical, electronic and electro-technical engineering equipment and materials
- Technical assistance for equipment and installations compliance
- Automatic controls, electrical pump units and flow meters Tests and checks
- Installations controls and expertise
- Rotating machines, and programmable automatic controls Tests and expertise

Metallurgy

- Quality control of ferrous and non ferrous metal products
- Micro and macro graphic analysis, metallographic retort
- Chemical analysis, assemblies' laboratory Tests
- Issues of corrosion, damage analysis, breakage mechanics
- Non destructive inspection and controls
- Regulatory controls of pressurized and hoisting devices

Fire security, Occupational safety and health

- Studies and expertises
- Technical audits
- Tests, analysis, certification
- Training

Packaging and conditioning

- Tests and expertise on plastic
- Tests and expertise on metallic packaging
- Tests on textiles, ropes and strings

ACTIVITY FIELDS:



Quality Approach

LPEE is accredited by COFRAC (French Accreditation Committee) and by the Ministry of Trade and Industry of Morocco for several tests programs... *

On a regular basis LPEE is subject to internal and external control audits of its quality management system.

LPEE's know-how, expertise and quality assurance approach are proposed to its partners:

- Compliance tests regarding standards, quality assessment and performance
- Consulting and assistance for worksite, and factory quality assurance approach.

* liste available upon request

Metrology

- Equipment calibration and setting
- Organization of intra and inter enterprise training sessions in metrology
- Assistance and consulting for measurement equipment park management
- Diagnostic audit of corporate entities metrological function

Research and Development

By participating in several national and international scientific societies and thanks to its human capital at the pinnacle of high technology and innovation, LPEE plays a major role in national standardization, certification and accreditation system. It actively participates in the national research system:

- Research, experimentation
- Reference book drafting: code, regulation, norms, technical specifications, manuals and guides...

Training, knowledge spreading

LPEE has an important role in building, public works and associated industries sector technical and scientific animation through:

- Training
- Event organization
- Communication participation at national and international conventions
- Participation and animation of principle professional sector meetings
- Publications

■ CASABLANCA : SPECIALIZED CENTERS

- CSB.....Centre Spécialisé du Bâtiment
Tél. :05 22 54 75 59
- CSTC.....Centre Scientifique et Technique des
Constructions
Tél. :05 22 48 87 30
- CERIT.....Centre d'Etudes et de Recherche des
Infrastructures de Transport
Tél. :05 22 48 87 13
- CEGT.....Centre Expérimental des Grands Travaux
Tél. :05 22 48 87 25
- CESCentre Expérimental des Sols
Tél. :05 22 48 87 50
- CEEE.....Centre d'Essais et d'Etudes Electriques
Tél. :05 22 48 87 70
- LNM.....Laboratoire National de Métrologie
Tél. :05 22 48 87 27
- CEH.....Centre Expérimental de l'Hydraulique
Tél. :05 22 48 87 62
- CEMGI.....Centre Expérimental des Matériaux et
du Génie Industriel
Tél. :05 22 48 87 04 / 022 69 90 20
- CEREP.....Centre d'Etudes et de Recherche sur
l'Environnement
Tél. :05 22 69 90 10
- DQ.....Direction de la Qualité
Tél. :05 22 48 87 21

■ REGIONAL CENTERS AND LABORATORIES

- AGADIR.....Tél. :05 28 82 05 22 / 028 82 46 88
 - Laayoune.....Tél. :05 28 89 48 33
- BNI MELLAL.....Tél. :05 23 48 28 46
- CASABLANCA...Tél. :05 22 54 75 58 / 75
- EL JADIDA.....Tél. :05 23 37 38 82
- FES.....Tél. :05 35 65 44 63 / 035 65 41 91
- KENITRA.....Tél. :05 37 37 85 14 / 92
 - Rabat.....Tél. :05 37 63 06 41 / 42
- MARRAKECH...Tél. :05 24 34 63 22 / 024 34 62 54
 - Ouarzazate.....Tél. :05 24 88 51 81 / 40
- MEKNES.....Tél. :05 35 50 23 97 / 035 50 36 41
- OUJDA.....Tél. :05 36 68 39 45
 - Al Hoceima.....Tél. :05 39 98 53 17
 - Nador.....Tél. :05 36 60 45 37
- SAFI.....Tél. :05 24 62 00 12
- TANGER.....Tél. :05 39 38 07 66 / 62 64
 - Larache.....Tél. :05 39 91 22 11 / 039 91 01 08
- TETOUAN.....Tél. :05 39 97 96 67

■ REFERENCES NATIONAL REFERENCES

Without being exhaustive, those are professional and technical references of some worksites and civil engineering works monitored by LPEE from preliminary design studies (feasibility studies, geotechnical studies, impact studies, and modelization) throw quality control, material and works control while achieving civil engineering works till receipt and during exploitation.

• Buildings

Administrative building • Sport complexes • New cities • Plot habitation complexes • Scholar and high studies constructions (universities, secondary schools, schools) mosques

• Airfields

• All Morocco airfields.

• Ways – Highways and transport infrastructures

• All ways, highways and railways network • Agricultural track network • Civil engineering works

• Hydraulic made up

• Hydraulic and agricultural made up of several irrigated perimeters all around Morocco kingdom

• Dams

• All dams and hydro electrical complexes built in Morocco kingdom.

• Ports

• All ports built in Morocco kingdom.

• Environment

• Underground and superficial water quality monitoring of all Morocco kingdom bank basins • Liquid pollution flow characterization • Air quality monitoring • Moroccan coastline swimming water quality annual study

• Cement physical and chemical tests

• Since 1994, cement controls and trials, and annual cement works audits.

• Covering

• Floor and wall tiles contro.

■ INTERNATIONAL REFERENCES

- Malabo port – Annobon Island – Corisco Island – Bata port – Kogo port
- Bata town drink water alimentation and sanitation works
- Earthworks – Bata port - Annobon port.



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