



SENATE OF PAKISTAN

REPORT OF THE SENATE STANDING COMMITTEE ON SCIENCE AND TECHNOLOGY

ON

"THE NATIONAL METROLOGY INSTITUTE OF PAKISTAN BILL, 2020"

Presented By:

Senator Afnan Ullah Khan

Member/Acting Chairman

Senate Standing Committee on Science and Technology

SENATE SECRETARIAT

Subject:- **REPORT OF THE SENATE STANDING COMMITTEE ON SCIENCE AND TECHNOLOGY**

I, Senator Afnan Ullah Khan, Member/Acting Chairman of the Senate Standing Committee on Science and Technology, have the honor to present this report on "*The National Metrology Institute of Pakistan Bill, 2022*" as passed by the National Assembly and introduced in the Senate in its sitting held on 24th January, 2022. The bill upon introduction was referred to the Senate Standing Committee on Science and Technology for consideration and report.

2. The constitution of the Standing Committee is as follows:

i.	Senator Sardar Muhammad Shafiq Tareen	Chairman
ii.	Senator Muhammad Humayun Mohmand	Member
iii.	Senator Muhammad Fesal Vawda	Member
iv.	Senator Liaqat Khan Tarakai	Member
v.	Senator Fawzia Arshad	Member
vi.	Senator Sana Jamali	Member
vii.	Senator Naseema Ehsan	Member
viii.	Senator Kamran Murtaza	Member
ix.	Senator Dr. Sikandar Mandhro	Member
x.	Senator Engr. Rukhsana Zuberi	Member
xi.	Senator Afnan Ullah Khan	Member
xii.	Minister for Science and Technology	Ex-Officio Member

3. The Standing Committee on Science and Technology considered the Bill in its meeting held on 26th January, 2022, under the chairmanship of Senator Afnan Ullah Khan (Acting Chairman). The following honorable Senators attended the meeting:

i.	Senator Afnan Ullah Khan	Acting Chairman
ii.	Senator Muhammad Hamayun Mohamand	Member
iii.	Senator Fawzia Arshad	Member
iv.	Senator Sana Jamali	Member
v.	Minister for Science and Technology	Ex-Officio Member

4. The Secretary, Ministry of Science and Technology (MoS&T), apprised the Committee that National Physical Standard Laboratory (NPSL) was established in Pakistan in 1974, under Pakistan Council of Scientific and Industrial Research (PCSIR) as an apex body for the

maintenance of primary and secondary standards of measurement and for testing and calibration of Standards and Equipment.

5. The Secretary further apprised that NPSL deals with the establishment of metrology infrastructure to implement international requirements and practices for quality assurance and supporting legal metrology in Pakistan. After dissolution of the Department of Weights and Measures, the functions of NPSL were increased and included verification of working standards of Inspectors of Provincial Governments and maintenance of Reference and Secondary Standards.

6. The Secretary further apprised that it is an international requirement of World Trade Organization (WTO) and other international trading partners that a dedicated institution of metrology should be established. The proposal for NPSL to be an autonomous body was approved by the Prime Minister in 1997. However, the legislation on the matter has not taken place since and still NPSL works under the PCSIR. The existing bills aims at filling this legislative gap to align metrology in Pakistan with the international requirements by establishing the independent National Metrology Institute Pakistan under the MoS&T.

7. The Committee briefly discussed and unanimously approved the Bill with the following amendments:

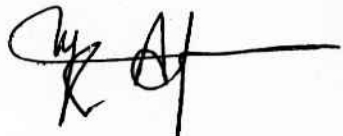
(i). In Section 3 subsection 2, Words “an organization” shall be deleted and replaced by “a body corporate”.

(ii) In Section 8 subsection 1(h), word “adapt” shall be replaced with “adopt”.

(iii) In Section 18 sub section 3, Word “government” shall be replaced by “Auditor General of Pakistan”.

8. Accordingly, the Committee recommends that ‘The National Metrology Institute of Pakistan Bill, 2022’ as passed by the National Assembly and introduced in the Senate, may be passed with the amendments in para (7).


(FAROOQ AHMED SHAH)
AD/Secretary Committee


(SENATOR AFNAN ULLAH KHAN)
Acting Chairperson/ Member
Senate Standing Committee on Science and Technology

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BILL

to provide for the establishment of National Metrology Institute of Pakistan

WHEREAS it is expedient to establish National Metrology Institute of Pakistan as an apex body, for the establishment of infrastructure of metrology to implement and operate a unified and coherent national measurement system as per international requirements and practices for quality assurance and management system and to support the legal metrology in Pakistan and matters ancillary thereto or connected therewith;

It is hereby enacted as follows:-

1. **Short title, extent and commencement.** — (1) This Act shall be called the National Metrology Institute of Pakistan Act, 2020.

(2) It extends to the whole of Pakistan.

(3) It shall come into force at once.

2. **Definitions.** — In this Act, unless there is anything repugnant in the subject or context,—

- (i) "APMP" means the Asia Pacific Metrology Program;
- (ii) "BIPM" means the Bureau Internationale Des Poids Et-Mesures i.e International Bureau of Weights and Measures;
- (iii) "Board" means the Board of Governors of the Institute constituted under this Act;
- (iv) "calibration" means "operation that, under specified conditions in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties (of the calibrated instrument or secondary standard) and in a second step, uses this information to establish a relation for obtaining a measurement result from an indication."
- (v) "Chairman" means the Chairman of the Board;
- (vi) "chemical standards" means certified reference materials and standard solutions;
- (vii) "Director-General" means the Director-General of the Institute;
- (viii) "Executive Committee" means the Executive Committee of the Board, constituted under this Act;

- (ix) "Government" means the Federal Government;
- (x) "General Conference of Weights and Measures" means the Conference General des Poids et Mesures (CGPM) established under the convention de Metre;
- (xi) "Institute" means the National Metrology Institute of Pakistan;
- (xii) "inter-laboratory comparison" means organization, performance and evaluation of measurements and tests on the same or similar items or measuring by two or more laboratories in accordance with predetermined conditions;
- (xiii) "IPO-Pakistan" means the Intellectual Property Organization of Pakistan;
- (xiv) "IP assets" means the intellectual property assets of the Institute, registered by IPO-Pakistan;
- (xv) "ISO" means International Organization for Standardization;
- (xvi) "ISO/IEC 17025" means international standard for general requirements for the competence of testing and calibration laboratories;
- (xvii) "member" means member of the Board;
- (xviii) "metrology" means the field of knowledge concerned with measurements and includes units of measurements and their field of application and all theoretical and practical problems relating to measurements or the science of measurement;
- (xix) "metrological traceability" means property of a measurement results, whereby the results can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty;
- (xx) "OIML" mean the Organization Internationale De-Metrology Legele i.e International Organization of Legal Metrology;
- (xxi) "PCSIR" means the Pakistan Council of Scientific and Industrial Research;
- (xxii) "physical standards" means measurements that serve as a basis for planning, scheduling and control of production;
- (xxiii) "PNAC" means Pakistan National Accreditation Council;
- (xxiv) "prescribed" means prescribed by rules or regulations;
- (xxv) "primary standards" means a standard that is sufficiently accurate, such that it is not calibrated by or subordinate to other standards. Primary standards are defined via other quantities like length, mass and time.

Primary standards are used to calibrate other standards referred to as working standards;

- (xxvi) "proficiency testing (PT)" means evaluation of participant's performance against pre-established criteria by means of inter-laboratory comparisons;
- (xxvii) "PSQCA" means the Pakistan Standards and Quality Control Authority, established under the Pakistan Standards and Quality Control Authority Act, 1996 (VI of 1996);
- (xxviii) "quality" means conformity to a given requirement or specification of a product or service or result;
- (xxix) "quality assurance" means a system of activities whose purpose is to provide an assurance that the overall quality control is in fact being done effectively;
- (xxx) "quality control" means a process by which bodies review the quality of all factors involved in production or service;
- (xxxi) "reference standard" means standards used to check the quality and metrological traceability of products, to validate analytical measurement methods, or for the calibration of instruments;
- (xxxii) "regulations" means regulations made under this Act;
- (xxxiii) "RMO" means Regional Metrology Organization of the Institute;
- (xxxiv) "rules" means rules made under this Act;
- (xxxv) "secondary standards" means standards which are prepared in the laboratory for a specific analysis and are standardized against a primary standard;
- (xxxvi) "services" means type of economic activity that is intangible, not stored and does not result in ownership;
- (xxxvii) "SI" means International Systems of Units as adopted by the 11th General Conference of Weights and Measurements (CGPM) through its resolution 12, in 1960;
- (xxxviii) "standards" means a level of quality or achievement, especially one that relevant expert consider normal or acceptable or a technical specification or other document available to the public, drawn up with the cooperation and consensus or general approval of all interests effected by it, based on the consolidated results of science, technology and experience

aimed at the promotion of optimum community benefits and introduced under this Act;

- (xxxix) "testing" means the action or process of examining a substance under known condition, in order to determine its identity and quality or one of the constituents and includes the action by which the physical properties, materials and machines are tested in order to determine their particular requirements or performances;
- (xl) "training" means training of technical staff in the field of standardization, testing, quality control, legal metrology, inspection and industrial research of public and private sector in Pakistan, as well as of trainees from other countries.
- (xli) "TDAP" means the Trade Development Authority of Pakistan;
- (xlii) "Technical Advisory Committee" means the Technical Advisory Committee constituted under this Act; and
- (xlili) "units of measurement" means a definite magnitude of a quantity, defined and adopted by convention or by law that is used as a standard for measurement of the same kind of quantity.

3. Establishment of the National Metrology Institute of Pakistan. — (1)

On the commencement of this Act, the existing National Physical and Standard Laboratories (NPSL), an entity of the PCSIR, shall stand separated from PCSIR, reconstituted and established as the National Metrology Institute of Pakistan (NMIP) hereinafter called as the Institute, in accordance with the provisions of this Act.

(2) The Institute being the national custodian of metrological standards shall be a body corporate having perpetual succession and a common seal, with powers, subject to the provisions of this Act, to acquire and hold property and shall by the said name sue and be sued.

(3) The Institute shall be at its existing place in Islamabad and it may establish its regional campuses anywhere in Pakistan, as the need may be, with the prior approval of the Board.

4. Functions of the Institute. — The Institute shall —

- (1) realize, acquire, keep, maintain, update, archive and disseminate at national level, the primary, reference and secondary

measurement standards and other derived standards of measurements in conformity with the international system (SI) of base or primary, derived and supplementary units, described as under, namely:-

(A) the description of SI primary units is as under: -

- (i) the primary unit of length shall be metre, denoted as "m";
- (ii) the primary unit of mass shall be kilogram, denoted as "kg";
- (iii) the primary unit of time shall be second, denoted as "s";
- (iv) the primary unit of electric current shall be ampere, denoted as "A";
- (v) the primary unit of thermodynamic temperature shall be Kelvin denoted as "K", where the Kelvin scale uses the degree Celsius (C) for its unit increment;
- (vi) the primary unit of luminous intensity shall be candela, denoted as "cd".
- (vii) the primary unit of amount of substance shall be mole, denoted as "mol";

(B) the description of secondary (derived) units of measurements is as under:-

- (i) the unit of volume shall be cubic metre, denoted as "m³";
- (ii) the unit of specific volume shall be cubic metre per kilogram, denoted as "m³ kg⁻¹";
- (iii) the unit of density shall be kilogram per cubic metre, denoted as "kg m⁻³";
- (iv) the unit of pressure shall be pascal, denoted as "Pa";
- (v) the unit of power shall be watt, denoted as "W";
- (vi) the unit of Frequency shall be denoted as "Hz".
- (vii) the unit of kinematic Viscosity shall be Centistokes, denoted as "cSt".
- (viii) the unit of electrical voltage or potential shall be Volt denoted as "V";

(C) the description of supplementary units of measurements is as under:-

The supplementary unit is referred as a dimensionless unit, which is employed with the fundamental units to create the derived units. The supplementary units are utilized in two major geometric variables such as phase angle and solid angle.

(i) Geometric variables	Units
(ii) Phase angle	radian, rad
(iii) Solid angle	steradian, sr

(D) Reference standards are as under:-

- (i) The institute may cause to acquire , process, keep and maintain as many sets of such standards of measure or multiples or sub-multiples thereof, to be called reference standards as it may consider expedient and cause the measure of each such set to be authenticated as having been ascertained from the primary units of measure.
- (ii) The reference standards shall be kept and maintained at the institute, in such custody and in such manner as may be prescribed.

(E) Secondary standards are as under:-

- (i) For the purpose of verifying the correctness of the working standards, the institute may cause to produce & provide as many sets of authenticated standards, to be called the secondary standards, as it may consider expedient;
- (ii) The secondary standards shall be made of such material, be of such weight, length, form and specifications and made in such a manner as may be prescribed and shall be stamped and authenticated by such person as the institute may direct;
- (iii) The secondary standards shall be kept at such places, in such custody and in such manner as may be prescribed;
- (iv) A secondary standard shall be verified or re-verified with the reference standards at least once in every period of five years and shall be adjusted or renewed, if necessary, and shall be marked with the date of verification in the prescribed manner by such person as the institute may direct; and
- (v) A secondary standard which is not so verified, adjusted or renewed and marked within the aforesaid period shall not be deemed legitimate and shall not be used for the purpose of this Act.

- (2) establish unbroken chain of metrological traceability to BIPM standards and its delivery down the ladder;**

- (3) conduct research to develop and improve the techniques of measurements, calibration, testing and analysis for obtaining maximum accuracy and precision of physical and chemical standards or measurements;
- (4) design and develop secondary and working standards in different fields of metrology as per international requirements;
- (5) design and develop testing and calibration instruments for accurate and precise measurement;
- (6) provide facilities and services for calibration, testing, verification and standardization of measurement standards and instruments and issue calibration certificates and test reports;
- (7) provide facilities for characterization and production of materials of specific properties and to carry out research to produce certified reference material for industrial quality control;
- (8) provide metrological support and services to industry and other sector of national economy including legal metrology sector;
- (9) carry-out human resource development through training courses, workshops, seminars and conferences etc. and issue certificates;
- (10) launch awareness schemes for promotion of metrology business in the country for trade enhancement;
- (11) regularly participate in the activities and cooperate with national, regional and international organizations for exchange of information, training, and collaborative programs for the promotion of metrological activities and to maintain the accuracy and traceability of national reference standards with internationally acceptable value of respective standards;
- (12) regularly participate in the inter laboratory or institute comparisons or proficiency testing programs, arranged by national, regional and international organizations to sustain and fortify the credibility of its services and operations, and get registered;
- (13) regularly participate in, arrange or hold the obligatory meetings of different forums including BIPM, APMP, other RMOs and NMIs of scientifically developed economies etc., deemed mandatory for the professional growth of the institute;

- (14) undertake contractual research and provide advisory services to industry, scientific or academic institutions and other public and private institutions for the solution of their measurement problems on commercial basis and to generate revenue to strengthen the activities of the Institute and also provide incentives to the researchers of the institute in accordance with the prescribed criteria;
- (15) advise the Government and submit policy recommendations regarding metrology, product and services quality, development, management, conservation and utilization;
- (16) publish scientific papers, reports and periodicals, as well as to arrange seminars, workshops and conferences on metrology and associated disciplines;
- (17) provide technical support to universities and research institutions for collaborative research projects and fellowships;
- (18) commercialize its research and development through training in skills related to the specialized functions of the Institute;
- (19) based upon the capability and competence, designate other Institutes as designated institutes to undertake certain metrology business in the areas of their expertise and excellence;
- (20) affiliate or attach with an academic institute for research and development and higher education in the field of metrology;
- (21) cooperate or conduct such programs with national and international organizations, bodies working in the same or similar field and engage in the similar activities and enter into MoUs, agreements or contracts with the prior approval of the Board and the Government on such terms and conditions as it may deem fit within the purview of its charter;
- (22) get registered IP assets of the Institute emanating from research or otherwise in IPO-Pakistan to facilitate commercialization and protection of IP assets; and
- (23) adopt and implement updated metrological definitions and any other metrological standard and or system as and when so directed by the Government.

5. **Management.**— The management of the Institute shall consist of,—

- (a) Board of Governors;
- (b) Executive Committee of the Board;
- (c) Director-General; and
- (d) Technical Advisory Committee.

6. **Board of Governors.**— The general direction and superintendence of the affairs of the Institute shall vest in the Board constituted under this Act, which may exercise all powers and do all acts and things which may be exercised or done by the Institute.

7. **Composition of the Board of the Governors.** — (1) The Board shall consist of the following:—

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| (a) Minister of the Division concerned. | Chairman |
| (b) Secretary of the Division concerned. | Vice-Chairman |
| (c) Secretary of the Finance Division or his representative not below the rank of Joint Secretary. | Member |
| (d) Secretary of the Division allocated with the business of industries or his representative not below the rank of Joint Secretary. | Member |
| (e) Secretary of the Division allocated with the business of defense production or his representative not below the rank of Joint Secretary. | Member |
| (f) Secretary of the Division allocated with the business of commerce or his representative not below the rank of Joint Secretary. | Member |
| (g) Vice-President, Trade Development Authority of Pakistan. | Member |
| (h) Director-General, Pakistan Standards and Quality Control Authority or his representative. | Member |
| (i) three reputed scientists or engineers having expertise in the field of metrology, nominated by the Government. | Members |
| (j) Secretary, Industries and Commerce of each province, including Gilgit-Baltistan and Azad Jammu and Kashmir or their representatives. | Members |

- (k) Director-General, National Metrology Institute of Member
Pakistan.

(2) The Director-General of the Institute shall act as the Secretary of the Board.

(3) The Government may increase or decrease the number of the Board members and the Board may co-opt any person as and when deemed appropriate.

8. Functions and powers of the Board.— (1) The Board shall -

- (a) review and approve annual, short term and long term plans, policies targets and schemes of the Institute;
- (b) approve research projects proposed by the Technical Advisory Committee;
- (c) approve the business strategy and plans of the Institute;
- (d) approve the annual development and non-development budget of the Institute;
- (e) create, upgrade, downgrade, abolish or re-designate any post and to rationalize the ratio between the technical and non-technical staff, officers and officials of the Institute;
- (f) engage technical and non-technical personnel and such consultants, advisors or experts, from time to time, on such terms and conditions as it may deem necessary for efficient performance of the functions of the Institute;
- (g) propose to the Government, rules for carrying out the activities considered necessary for achieving efficient functioning of the Institute under this Act,;
- (h) adopt any rule and policy of the Government, in full or part thereof, for implementation within the institute for its efficient performance and smooth operations;
- (i) approve schemes and programmes for carrying out collaborative research with regional and international bodies and institutes in various fields of metrology;
- (j) take all measures to address, fulfill, smoothly perform and achieve the functions of the Institute; and

- (k) consider and approve new areas of activity for the Institute and open new centers or campuses at other locations, as and when deemed appropriate.

(2) The Board may delegate all or any of its powers by general or special order in writing, directing that such of its powers shall, in such circumstances and under such conditions, if any, as may be specified in the order, be exercised by the Chairman, Executive Committee, or a member or officer of the Institute.

(3) The Board may co-opt technical expert from provinces, in the committee for consultation, as and when need arises.

9. Terms of office of members.— (1) Save as hereinafter provided, a member, other than *ex-officio* member, shall hold office for a period of three years from the date of his appointment:

Provided that a member may be removed from his office on account of misconduct in accordance with the procedure applicable to the corresponding level of Government servants.

(2) A member, other than an *ex officio* member, may at any time resign in writing under his hand addressed to the Government.

10. Meetings of the Board.— (1) Save as hereinafter provided, the Board shall regulate the procedure for its meetings.

(2) Meetings of the Board shall be called by its Chairman and in his absence by the Vice-Chairman on such date and time and places as he may deem fit:

Provided that not less than two meetings shall be held in a year.

(3) Eight members of the Board including Chairman or Vice-Chairman shall constitute the quorum of the Board.

(4) The decisions of the Board shall be expressed in terms of opinion of the majority of the members present in a meeting and in the event of equality, the Chairman or the Vice-Chairman presiding the meeting shall have a casting vote.

(5) Each meeting of the Board shall be presided over by the Chairman or, in his absence, by Vice-Chairman or any other member so authorized by the Chairman.

11. Executive Committee of the Board.— (1) Notwithstanding anything contained in this Act, the Executive Committee shall take decisions on behalf of the Board subject to ratification by the Board at its meeting immediately following the meeting of the Executive Committee, unless otherwise authorized by the Board.

(2) The Executive Committee shall comprise the following members, namely:-

- (a) Director-General. Convener
- (b) dealing officer not below the rank of Joint Secretary Member
of the Division concerned with science and
technology.
- (c) two senior most scientists of the Institute. Members

(3) Subject to the provisions of this Act and the rules and regulations made thereunder and such general or special direction as may, from time to time, be given by the Board, the Executive Committee shall deal with any matter authorized by the Board.

12. Director-General.— (1) The Government or a person authorized by it in this behalf, shall appoint a Director-General from amongst the persons fulfilling the requirements of sub-section (2), for a term of four years extendable further, upon the recommendations of the Board, for a period not exceeding four years, on conditions as may be prescribed.

(2) No person shall be appointed as Director General unless having at least MS or M.Sc. degree in natural or physical sciences, or equivalent in engineering sciences from a university recognized by the Higher Education Commission, with at least fifteen years' experience in senior management cadre including five years in the field of metrology.

13. Powers and functions of the Director-General. — The Director-General shall be the chief executive of the Institute, who shall-

- (a) from time to time, for the purpose of ensuring efficient functioning of the Institute and to facilitate its day to day functions, delegate to any of the officers of the Institute, such of his functions, powers or duties as he may consider necessary;
- (b) formulate business and research plans and submit to the Board for approval;
- (c) ensure the protection of all assets of the Institute including intellectual property assets in collaboration with IPO-Pakistan;
- (d) promote commercialization of research and development work and IP assets of the Institute linking it with the market demand;
- (e) arrange for annual performance evaluation of the Institute from technical and professional auditors;
- (f) prepare the annual report of the Institute for submission to the Government which may also place it before the Parliament;

- (g) identify areas of strength and weakness and formulate remedial programs;
- (h) commission industry specific studies to identify technical problems and to approve plans for technical, scientific input by the Institute towards their solution;
- (i) arrange management and technical courses on regular basis for managerial cadres of the Institute and metrological measurement courses for export oriented industry personnel; and
- (j) appoint, subject to the provisions of clause (f) of section 8, such officers and officials, as may be necessary for efficient performance of the functions of the Institute, on such terms and conditions as may be prescribed.

14. Technical Advisory Committee. — There shall be a Technical Advisory Committee of the Institute comprising -

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| (a) | Director General of the Institute; | Chairperson |
| (b) | Deputy Director General of the Institute; | Member |
| (c) | two senior most scientists of the Institute; | Members |
| (d) | a representative from the Division allocated with business of defense production; | Member |
| (e) | two representatives from industrial sector, to be nominated by the Director General of the Institute; | Members |
| (f) | representative from Pakistan Standards and Quality Control Authority; and | Member |
| (g) | representative from Pakistan National Accreditation Council; | Member |

15. Powers of the Technical Advisory Committee. — The Technical Advisory Committee shall-

- (a) identify and prepare research programmes and projects relevant to the industry and market demand;
- (b) propose annual, short term, long term development programmes and business strategy and plans of the Institute;

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- (c) advise and report on any technical matters referred to it by any forum;
 - (d) conduct performance evaluation of the research programmes for consideration by the Board;
 - (e) identify and propose need based future policies and plans; and
 - (f) evaluate and guide demand-oriented development projects for the Institute and propose annual and five years development programmes, render advice and report on any technical matter referred to it by the Board or Executive Committee or Director General, or as the case may be.

16. Fund of the Institute. — The fund of the Institute shall consist of -

- (a) grants from the Government;
- (b) donations and endowments;
- (c) funds generated through sale proceeds, technical and consultancy services and income from IP assets;
- (d) loans, aid and donations from national, regional or international agencies;
- (e) research grants; and
- (f) funds transferred on the separation of National Physical and Standards Laboratory from Pakistan Council of Scientific and Industrial Research and its re-constitution as an Institute.

17. Appointment of officers, staff, etc. — (1) The Institute may, from time to time, appoint such officers and staff as it may consider necessary for the efficient performance of its functions, on such terms and conditions as may be prescribed.

(2) The Institute may engage experts or consultants on such terms and conditions as may be prescribed.

18. Budget and accounts. — (1) The Director General shall, in respect of each financial year, submit for the approval of the Board, a statement showing all the expenditures incurred during the year along with estimated receipts and expenditures for the next financial year.

(2) The Institute shall, by such date and in such form as may be prescribed, submit to the Government for the approval of its budget for each financial year showing the estimated receipts and expenditure and the sums which are likely to be required from the Government during the financial year.

(3) The accounts of the Institute shall be maintained in such form and manner as may be determined by the Auditor General of Pakistan

(4) The accounts of the Institute shall be audited by the Auditor General of Pakistan.

19. Submission of reports, etc. — The Institute shall submit to the Government, at such time and at such intervals as the Government may specify,

- (a) annual report on the working of the Institute and its ranking on the global level as a competitive ranking;
- (b) such periodical reports and summaries as may be required by the Government;
- (c) such periodical return, accounts, statements and statistics as may be required by the Government;
- (d) information and comments asked for by the Government on any specific point;
- (e) copies of the documents required by the Government; and
- (f) original documents required by the Government for examination or any other purpose.

20. Directives from the Government. — The Government may, from time to time, issue to the Institute such directives and orders as it may consider necessary for carrying out the purposes of this Act and the Institute shall follow and carry out such directives and orders.

21. Discoveries and inventions to vest in the Institute. — All rights relating to discoveries and inventions and any improvements in materials, methods, processes, apparatus or equipment made by any officer or employee of the Institute in the course of his employment shall vest in the Institute.

22. Declaration of fidelity and secrecy. — Every member, advisor, officer or other employee of the Institute shall make such declaration of fidelity and secrecy as may be prescribed.

23. Power to make rules. — (1) The Government may, by notification in the official Gazette, make rules for carrying out the purposes of this Act.

(2) In particular and without prejudice to the generality of the foregoing provision, such rules may provide for—

- (a) the functions and powers of the Chairman, Director General and other functionaries of the Institute;

- (c) the conditions under which the Institute may enter into arrangements or agreements with other institutions, individual organizations, whether public, private or autonomous bodies.

24. Power to make regulations. — (1) The Board may, by notification in the official Gazette, make regulations not inconsistent with the provisions of this Act or the rules made there under, providing for all matters for which provision is necessary or expedient for the purpose of giving effect to the provisions of this Act and the efficient and smooth conduct of the affairs of the Institute.

(2) In particular and without prejudice to the generality of the foregoing provision, the regulations may provide for-

- (a) the criteria for appointment, promotion and other service matters of the employees of the Institute;
- (b) the career structure of the Institute and terms and conditions of service of the employees of the Institute including pension and disciplinary matters;
- (c) the grant of performance based incentives for the motivation of the employees of the institute;
- (d) the conduct of business at the meetings of the Board and the Executive Committee;
- (e) the duties, functions and conduct of the officers and employees of the Institute;
- (f) preparation of annual estimates of income and expenditure and supplementary estimates;
- (g) the use and disbursement of funds earned by the Institute on account of testing, calibration, analysis, sale, training, advisory, consultancy and other services;
- (h) the forms of returns and statements for various purposes;
- (i) the scheme of benevolent funds, group insurance and constitution of general provident fund and welfare fund for the employees of the Institute;
- (j) the investment of the funds of the Institute in various schemes of Government or its financial development institutions for the general welfare of the employees of the Institute;

- (k) the manner in which payments are to be made by or on behalf of the Institute and the officers by whom orders for making deposits or investments or for withdrawals or any other disposal of the income or funds of the institute shall be authenticated, made or signed;
- (l) extension of medical, housing, transport, loans, grants and other facilities for the well-being and welfare of the employees of the Institute; and
- (m) the custody and use of common seal of the Institute.

25. Continuance of certain rules etc. — All rules, regulations and bye-laws made by the PCSIR in force immediately before the commencement of this Act which relate to provisions of this Act shall *mutatis mutandis*, and so far as they are not inconsistent with any of the provisions of this Act, continue in force until repealed or amended by rules or regulations made under this Act.

26. Repeal and Savings. — (1) The provisions of Weights and Measures (International System) Act, 1967 (V of 1967) and any other law for the time being in force to the extent of the matters covered under this Act shall stand repealed.

(2) Upon the commencement of this Act,-

- (a) all assets, rights, powers authorities and privileges and all property movable or immovable, cash and bank balance, reserve funds, investments and all other interests and rights in or arising out of such property and all debts all liabilities and obligations of whatever kind of the NPSL subsisting immediately before its separation from PCSIR shall stand transferred to and vest in the Institute;
- (b) all debts and obligations incurred or contracts entered into or rights acquired and all matters and things engaged to be done by, with or for the NPSL before its separation and reconstitution as NMIP, shall be deemed to have been incurred, entered into, acquired or engaged to be done by, with or for the Institute;
- (c) all suits and other legal proceedings instituted by or against the NPSL before its separation from PCSIR and reconstitution as NMIP shall be deemed to be suits and legal proceedings by or

against the Institute and may be proceeded or otherwise dealt with accordingly;

(d) all actions done by the NPSL before the commencement of this Act shall be deemed to be done under this Act;

(e) all officers and other employees of the NPSL shall, notwithstanding anything contained in any law or in any agreement, deed, document or other instrument, stand transferred to the Institute in accordance with the present terms and conditions of the service applicable to them; and

(f) on transfer under clause (e), all existing officers and employees shall, within ninety days of the commencement of this Act, exercise an irrevocable option either to become employees of the Institute established under this Act or continue on their existing terms and conditions of service, including their pension, general provident fund, gratuity, housing and other fringe benefits, applicable immediately before commencement of this Act.

STATEMENT OF OBJECTS AND REASONS

National Physical and Standards Laboratory (NPSL) was established in 1974, under Pakistan Council of Scientific and Industrial Research (PCSIR) as a national apex body for maintenance of Primary & Secondary Standards of measurements and for testing & calibration of Standards & equipment. "It deals with the establishment of infrastructure of metrology to implement and operate a unified and coherent national measurement system as per international requirements and practices for quality assurance and management system and to support legal metrology in Pakistan". The organization caters for a limited number of fields of metrology i.e. the Science of measurement which include Mass, Length, Time & Frequency, Electrical, Thermal and Pressure measurements. With growing awareness about metrology, consumer rights and quality of products and services, it was felt that a dedicated Metrology Institute of national level was required to be set up to meet requirements of the international trading partners and WTO obligations. Therefore, National Physical and Standards Laboratory (NPSL) is being separated from PCSIR and established as an autonomous body, directly under the administrative control of Ministry of Science and Technology, as National Metrology Institute of Pakistan (NMIP).

(Chaudhry Fawad Hussain)
Federal Minister for Science & Technology

[AS PASSED BY THE NATIONAL ASSEMBLY]

A BILL

to provide for the establishment of National Metrology Institute of Pakistan

WHEREAS it is expedient to establish National Metrology Institute of Pakistan as an apex body, for the establishment of infrastructure of metrology to implement and operate a unified and coherent national measurement system as per international requirements and practices for quality assurance and management system and to support the legal metrology in Pakistan and matters ancillary thereto or connected therewith;

It is hereby enacted as follows:-

1. **Short title, extent and commencement.** — (1) This Act shall be called the National Metrology Institute of Pakistan Act, 2020.

(2) It extends to the whole of Pakistan.

(3) It shall come into force at once.

2. **Definitions.** — In this Act, unless there is anything repugnant in the subject or context,—

- (i) "APMP" means the Asia Pacific Metrology Program;
- (ii) "BIPM" means the Bureau Internationale Des Poids Et-Mesures i.e International Bureau of Weights and Measures;
- (iii) "Board" means the Board of Governors of the Institute constituted under this Act;
- (iv) "calibration" means "operation that, under specified conditions in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties (of the calibrated instrument or secondary standard) and in a second step, uses this information to establish a relation for obtaining a measurement result from an indication."
- (v) "Chairman" means the Chairman of the Board;
- (vi) "chemical standards" means certified reference materials and standard solutions;
- (vii) "Director-General" means the Director-General of the Institute;
- (viii) "Executive Committee" means the Executive Committee of the Board, constituted under this Act;

- (ix) "Government" means the Federal Government;
- (x) "General Conference of Weights and Measures" means the Conference General des Poids et Measures (CGPM) established under the convention de Metre;
- (xi) "Institute" means the National Metrology Institute of Pakistan;
- (xii) "inter-laboratory comparison" means organization, performance and evaluation of measurements and tests on the same or similar items or measuring by two or more laboratories in accordance with predetermined conditions;
- (xiii) "IPO-Pakistan" means the Intellectual Property Organization of Pakistan;
- (xiv) "IP assets" means the intellectual property assets of the Institute, registered by IPO-Pakistan;
- (xv) "ISO" means International Organization for Standardization;
- (xvi) "ISO/IEC 17025" means international standard for general requirements for the competence of testing and calibration laboratories;
- (xvii) "member" means member of the Board;
- (xviii) "metrology" means the field of knowledge concerned with measurements and includes units of measurements and their field of application and all theoretical and practical problems relating to measurements or the science of measurement;
- (xix) "metrological traceability" means property of a measurement results, whereby the results can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty;
- (xx) "OIML" mean the Organization Internationale De-Metrology Legele i.e International Organization of Legal Metrology;
- (xxi) "PCSIR" means the Pakistan Council of Scientific and Industrial Research;
- (xxii) "physical standards" means measurements that serve as a basis for planning, scheduling and control of production;
- (xxiii) "PNAC" means Pakistan National Accreditation Council;
- (xxiv) "prescribed" means prescribed by rules or regulations;
- (xxv) "primary standards" means a standard that is sufficiently accurate, such that it is not calibrated by or subordinate to other standards. Primary standards are defined via other quantities like length, mass and time.

Primary standards are used to calibrate other standards referred to as working standards;

(xxvi) "proficiency testing (PT)" means evaluation of participant's performance against pre-established criteria by means of inter-laboratory comparisons;

(xxvii) "PSQCA" means the Pakistan Standards and Quality Control Authority, established under the Pakistan Standards and Quality Control Authority Act, 1996 (VI of 1996);

(xxviii) "quality" means conformity to a given requirement or specification of a product or service or result;

(xxix) "quality assurance" means a system of activities whose purpose is to provide an assurance that the overall quality control is in fact being done effectively;

(xxx) "quality control" means a process by which bodies review the quality of all factors involved in production or service;

(xxxi) "reference standard" means standards used to check the quality and metrological traceability of products, to validate analytical measurement methods, or for the calibration of instruments;

(xxxii) "regulations" means regulations made under this Act;

(xxxiii) "RMO" means Regional Metrology Organization of the Institute;

(xxxiv) "rules" means rules made under this Act;

(xxxv) "secondary standards" means standards which are prepared in the laboratory for a specific analysis and are standardized against a primary standard;

(xxxvi) "services" means type of economic activity that is intangible, not stored and does not result in ownership;

(xxxvii) "SI" means International Systems of Units as adopted by the 11th General Conference of Weights and Measurements (CGPM) through its resolution 12, in 1960;

(xxxviii) "standards" means a level of quality or achievement, especially one that relevant expert consider normal or acceptable or a technical specification or other document available to the public, drawn up with the cooperation and consensus or general approval of all interests effected by it, based on the consolidated results of science, technology and experience

aimed at the promotion of optimum community benefits and introduced under this Act;

- (xxxix) "testing" means the action or process of examining a substance under known condition, in order to determine its identity and quality or one of the constituents and includes the action by which the physical properties, materials and machines are tested in order to determine their particular requirements or performances;
- (xl) "training" means training of technical staff in the field of standardization, testing, quality control, legal metrology, inspection and industrial research of public and private sector in Pakistan, as well as of trainees from other countries.
- (xli) "TDAP" means the Trade Development Authority of Pakistan;
- (xlii) "Technical Advisory Committee" means the Technical Advisory Committee constituted under this Act; and
- (xlili) "units of measurement" means a definite magnitude of a quantity, defined and adopted by convention or by law that is used as a standard for measurement of the same kind of quantity.

3. Establishment of the National Metrology Institute of Pakistan. — (1)

On the commencement of this Act, the existing National Physical and Standard Laboratories (NPSL), an entity of the PCSIR, shall stand separated from PCSIR, reconstituted and established as the National Metrology Institute of Pakistan (NMIP) hereinafter called as the Institute, in accordance with the provisions of this Act.

(2) The Institute being the national custodian of metrological standards shall be an organization having perpetual succession and a common seal, with powers, subject to the provisions of this Act, to acquire and hold property and shall by the said name sue and be sued.

(3) The Institute shall be at its existing place in Islamabad and it may establish its regional campuses anywhere in Pakistan, as the need may be, with the prior approval of the Board.

4. Functions of the Institute.— The Institute shall —

- (1) realize, acquire, keep, maintain, update, archive and disseminate at national level, the primary, reference and secondary

measurement standards and other derived standards of measurements in conformity with the international system (SI) of base or primary, derived and supplementary units, described as under, namely:-

(A) the description of SI primary units is as under: -

- (i) the primary unit of length shall be metre, denoted as "m";
- (ii) the primary unit of mass shall be kilogram, denoted as "kg";
- (iii) the primary unit of time shall be second, denoted as "s";
- (iv) the primary unit of electric current shall be ampere, denoted as "A";
- (v) the primary unit of thermodynamic temperature shall be Kelvin denoted as "K", where the Kelvin scale uses the degree Celsius (C) for its unit increment;
- (vi) the primary unit of luminous intensity shall be candela, denoted as "cd".
- (vii) the primary unit of amount of substance shall be mole, denoted as "mol";

(B) the description of secondary (derived) units of measurements is as under:-

- (i) the unit of volume shall be cubic metre, denoted as "m³";
- (ii) the unit of specific volume shall be cubic metre per kilogram, denoted as "m³ kg⁻¹";
- (iii) the unit of density shall be kilogram per cubic metre, denoted as "kg m⁻³";
- (iv) the unit of pressure shall be pascal, denoted as "Pa";
- (v) the unit of power shall be watt, denoted as "W";
- (vi) the unit of Frequency shall be denoted as "Hz";
- (vii) the unit of kinematic Viscosity shall be Centistokes, denoted as "cSt";
- (viii) the unit of electrical voltage or potential shall be Volt denoted as "V";

(C) the description of supplementary units of measurements is as under:-

The supplementary unit is referred as a dimensionless unit, which is employed with the fundamental units to create the derived units.

The supplementary units are utilized in two major geometric variables such as phase angle and solid angle.

(i) Geometric variables	Units
(ii) Phase angle	radian, rad
(iii) Solid angle	steradian, sr

(D) Reference standards are as under:-

- (i) The institute may cause to acquire , process, keep and maintain as many sets of such standards of measure or multiples or sub-multiples thereof, to be called reference standards as it may consider expedient and cause the measure of each such set to be authenticated as having been ascertained from the primary units of measure.
- (ii) The reference standards shall be kept and maintained at the institute, in such custody and in such manner as may be prescribed.

(E) Secondary standards are as under:-

- (i) For the purpose of verifying the correctness of the working standards, the institute may cause to produce & provide as many sets of authenticated standards, to be called the secondary standards, as it may consider expedient;
- (ii) The secondary standards shall be made of such material, be of such weight, length, form and specifications and made in such a manner as may be prescribed and shall be stamped and authenticated by such person as the institute may direct;
- (iii) The secondary standards shall be kept at such places, in such custody and in such manner as may be prescribed;
- (iv) A secondary standard shall be verified or re-verified with the reference standards at least once in every period of five years and shall be adjusted or renewed, if necessary, and shall be marked with the date of verification in the prescribed manner by such person as the institute may direct; and
- (v) A secondary standard which is not so verified, adjusted or renewed and marked within the aforesaid period shall not be deemed legitimate and shall not be used for the purpose of this Act.

- (2) establish unbroken chain of metrological traceability to BIPM standards and its delivery down the ladder;

- (3) conduct research to develop and improve the techniques of measurements, calibration, testing and analysis for obtaining maximum accuracy and precision of physical and chemical standards or measurements;
- (4) design and develop secondary and working standards in different fields of metrology as per international requirements;
- (5) design and develop testing and calibration instruments for accurate and precise measurement;
- (6) provide facilities and services for calibration, testing, verification and standardization of measurement standards and instruments and issue calibration certificates and test reports;
- (7) provide facilities for characterization and production of materials of specific properties and to carry out research to produce certified reference material for industrial quality control;
- (8) provide metrological support and services to industry and other sector of national economy including legal metrology sector;
- (9) carry-out human resource development through training courses workshops, seminars and conferences etc. and issue certificates;
- (10) launch awareness schemes for promotion of metrology business in the country for trade enhancement;
- (11) regularly participate in the activities and cooperate with national, regional and international organizations for exchange of information, training, and collaborative programs for the promotion of metrological activities and to maintain the accuracy and traceability of national reference standards with internationally acceptable value of respective standards;
- (12) regularly participate in the inter laboratory or institute comparisons or proficiency testing programs, arranged by national, regional and international organizations to sustain and fortify the credibility of its services and operations, and get registered;
- (13) regularly participate in, arrange or hold the obligatory meetings of different forums including BIPM, APMP, other RMOs and NMIs of scientifically developed economies etc., deemed mandatory for the professional growth of the institute;

- (14) undertake contractual research and provide advisory services to industry, scientific or academic institutions and other public and private institutions for the solution of their measurement problems on commercial basis and to generate revenue to strengthen the activities of the Institute and also provide incentives to the researchers of the institute in accordance with the prescribed criteria;
- (15) advise the Government and submit policy recommendations regarding metrology, product and services quality, development, management, conservation and utilization;
- (16) publish scientific papers, reports and periodicals, as well as to arrange seminars, workshops and conferences on metrology and associated disciplines;
- (17) provide technical support to universities and research institutions for collaborative research projects and fellowships;
- (18) commercialize its research and development through training in skills related to the specialized functions of the Institute;
- (19) based upon the capability and competence, designate other Institutes as designated institutes to undertake certain metrology business in the areas of their expertise and excellence;
- (20) affiliate or attach with an academic institute for research and development and higher education in the field of metrology;
- (21) cooperate or conduct such programs with national and international organizations, bodies working in the same or similar field and engage in the similar activities and enter into MoUs, agreements or contracts with the prior approval of the Board and the Government on such terms and conditions as it may deem fit within the purview of its charter;
- (22) get registered IP assets of the Institute emanating from research or otherwise in IPO-Pakistan to facilitate commercialization and protection of IP assets; and
- (23) adopt and implement updated metrological definitions and any other metrological standard and or system as and when so directed by the Government.

5. Management.— The management of the Institute shall consist of,—

- (a) Board of Governors;
- (b) Executive Committee of the Board;
- (c) Director-General; and
- (d) Technical Advisory Committee.

6. Board of Governors.— The general direction and superintendence of the affairs of the Institute shall vest in the Board constituted under this Act, which may exercise all powers and do all acts and things which may be exercised or done by the Institute.

7. Composition of the Board of the Governors. — (1) The Board shall consist of the following:—

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| (a) Minister of the Division concerned. | Chairman |
| (b) Secretary of the Division concerned. | Vice-Chairman |
| (c) Secretary of the Finance Division or his representative not below the rank of Joint Secretary. | Member |
| (d) Secretary of the Division allocated with the business of industries or his representative not below the rank of Joint Secretary. | Member |
| (e) Secretary of the Division allocated with the business of defense production or his representative not below the rank of Joint Secretary. | Member |
| (f) Secretary of the Division allocated with the business of commerce or his representative not below the rank of Joint Secretary. | Member |
| (g) Vice-President, Trade Development Authority of Pakistan. | Member |
| (h) Director-General, Pakistan Standards and Quality Control Authority or his representative. | Member |
| (i) three reputed scientists or engineers having expertise in the field of metrology, nominated by the Government. | Members |
| (j) Secretary, Industries and Commerce of each province, including Gilgit-Baltistan and Azad Jammu and Kashmir or their representatives. | Members |

- (k) Director-General, National Metrology Institute of Member
Pakistan.

(2) The Director-General of the Institute shall act as the Secretary of the Board.

(3) The Government may increase or decrease the number of the Board members and the Board may co-opt any person as and when deemed appropriate.

8. Functions and powers of the Board.—(1) The Board shall -

- (a) review and approve annual, short term and long term plans, policies targets and schemes of the Institute;
- (b) approve research projects proposed by the Technical Advisory Committee;
- (c) approve the business strategy and plans of the Institute;
- (d) approve the annual development and non-development budget of the Institute;
- (e) create, upgrade, downgrade, abolish or re-designate any post and to rationalize the ratio between the technical and non-technical staff, officers and officials of the Institute;
- (f) engage technical and non-technical personnel and such consultants, advisors or experts, from time to time, on such terms and conditions as it may deem necessary for efficient performance of the functions of the Institute;
- (g) propose to the Government, rules for carrying out the activities considered necessary for achieving efficient functioning of the Institute under this Act,;
- (h) adapt any rule and policy of the Government, in full or part thereof, for implementation within the institute for its efficient performance and smooth operations;
- (i) approve schemes and programmes for carrying out collaborative research with regional and international bodies and institutes in various fields of metrology;
- (j) take all measures to address, fulfill, smoothly perform and achieve the functions of the Institute; and

- (k) consider and approve new areas of activity for the Institute and open new centers or campuses at other locations, as and when deemed appropriate.

(2) The Board may delegate all or any of its powers by general or special order in writing, directing that such of its powers shall, in such circumstances and under such conditions, if any, as may be specified in the order, be exercised by the Chairman, Executive Committee, or a member or officer of the Institute.

(3) The Board may co-opt technical expert from provinces, in the committee for consultation, as and when need arises.

9. Terms of office of members.— (1) Save as hereinafter provided, a member, other than *ex-officio* member, shall hold office for a period of three years from the date of his appointment:

Provided that a member may be removed from his office on account of misconduct in accordance with the procedure applicable to the corresponding level of Government servants.

(2) A member, other than an *ex officio* member, may at any time resign in writing under his hand addressed to the Government.

10. Meetings of the Board.— (1) Save as hereinafter provided, the Board shall regulate the procedure for its meetings.

(2) Meetings of the Board shall be called by its Chairman and in his absence by the Vice-Chairman on such date and time and places as he may deem fit:

Provided that not less than two meetings shall be held in a year.

(3) Eight members of the Board including Chairman or Vice-Chairman shall constitute the quorum of the Board.

(4) The decisions of the Board shall be expressed in terms of opinion of the majority of the members present in a meeting and in the event of equality, the Chairman or the Vice-Chairman presiding the meeting shall have a casting vote.

(5) Each meeting of the Board shall be presided over by the Chairman or, in his absence, by Vice-Chairman or any other member so authorized by the Chairman.

11. Executive Committee of the Board.— (1) Notwithstanding anything contained in this Act, the Executive Committee shall take decisions on behalf of the Board subject to ratification by the Board at its meeting immediately following the meeting of the Executive Committee, unless otherwise authorized by the Board.

(2) The Executive Committee shall comprise the following members, namely:-

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|-----|--|----------|
| (a) | Director-General. | Convener |
| (b) | dealing officer not below the rank of Joint Secretary of the Division concerned with science and technology. | Member |
| (c) | two senior most scientists of the Institute. | Members |

(3) Subject to the provisions of this Act and the rules and regulations made thereunder and such general or special direction as may, from time to time, be given by the Board, the Executive Committee shall deal with any matter authorized by the Board.

12. Director-General.— (1) The Government or a person authorized by it in this behalf, shall appoint a Director-General from amongst the persons fulfilling the requirements of sub-section (2), for a term of four years extendable further, upon the recommendations of the Board, for a period not exceeding four years, on conditions as may be prescribed.

(2) No person shall be appointed as Director General unless having at least MS or M.Sc. degree in natural or physical sciences, or equivalent in engineering sciences from a university recognized by the Higher Education Commission, with at least fifteen years' experience in senior management cadre including five years in the field of metrology.

13. Powers and functions of the Director-General. — The Director-General shall be the chief executive of the Institute, who shall-

- (a) from time to time, for the purpose of ensuring efficient functioning of the Institute and to facilitate its day to day functions, delegate to any of the officers of the Institute, such of his functions, powers or duties as he may consider necessary;
- (b) formulate business and research plans and submit to the Board for approval;
- (c) ensure the protection of all assets of the Institute including intellectual property assets in collaboration with IPO-Pakistan;
- (d) promote commercialization of research and development work and IP assets of the Institute linking it with the market demand;
- (e) arrange for annual performance evaluation of the Institute from technical and professional auditors;
- (f) prepare the annual report of the Institute for submission to the Government which may also place it before the Parliament;

- (g) identify areas of strength and weakness and formulate remedial programs;
- (h) commission industry specific studies to identify technical problems and to approve plans for technical, scientific input by the Institute towards their solution;
- (i) arrange management and technical courses on regular basis for managerial cadres of the Institute and metrological measurement courses for export oriented industry personnel; and
- (j) appoint, subject to the provisions of clause (f) of section 8, such officers and officials, as may be necessary for efficient performance of the functions of the Institute, on such terms and conditions as may be prescribed.

14. Technical Advisory Committee. — There shall be a Technical Advisory Committee of the Institute comprising -

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|-----|---|-------------|
| (a) | Director General of the Institute; | Chairperson |
| (b) | Deputy Director General of the Institute; | Member |
| (c) | two senior most scientists of the Institute; | Members |
| (d) | a representative from the Division allocated with business of defense production; | Member |
| (e) | two representatives from industrial sector, to be nominated by the Director General of the Institute; | Members |
| (f) | representative from Pakistan Standards and Quality Control Authority; and | Member |
| (g) | representative from Pakistan National Accreditation Council; | Member |

15. Powers of the Technical Advisory Committee. — The Technical Advisory Committee shall-

- (a) identify and prepare research programmes and projects relevant to the industry and market demand;
- (b) propose annual, short term, long term development programmes and business strategy and plans of the Institute;

- (c) advise and report on any technical matters referred to it by any forum;
- (d) conduct performance evaluation of the research programmes for consideration by the Board;
- (e) identify and propose need based future policies and plans; and
- (f) evaluate and guide demand-oriented development projects for the Institute and propose annual and five years development programmes, render advice and report on any technical matter referred to it by the Board or Executive Committee or Director General, or as the case may be.

16. Fund of the Institute. — The fund of the Institute shall consist of -

- (a) grants from the Government;
- (b) donations and endowments;
- (c) funds generated through sale proceeds, technical and consultancy services and income from IP assets;
- (d) loans, aid and donations from national, regional or international agencies;
- (e) research grants; and
- (f) funds transferred on the separation of National Physical and Standards Laboratory from Pakistan Council of Scientific and Industrial Research and its re-constitution as an Institute.

17. Appointment of officers, staff, etc. — (1) The Institute may, from time to time, appoint such officers and staff as it may consider necessary for the efficient performance of its functions, on such terms and conditions as may be prescribed.

(2) The Institute may engage experts or consultants on such terms and conditions as may be prescribed.

18. Budget and accounts. — (1) The Director General shall, in respect of each financial year, submit for the approval of the Board, a statement showing all the expenditures incurred during the year along with estimated receipts and expenditures for the next financial year.

(2) The Institute shall, by such date and in such form as may be prescribed, submit to the Government for the approval of its budget for each financial year showing the estimated receipts and expenditure and the sums which are likely to be required from the Government during the financial year.

(3) The accounts of the Institute shall be maintained in such form and manner as may be determined by the Government.

(4) The accounts of the Institute shall be audited by the Auditor General of Pakistan.

19. Submission of reports, etc. — The Institute shall submit to the Government, at such time and at such intervals as the Government may specify,

- (a) annual report on the working of the Institute and its ranking on the global level as a competitive ranking;
- (b) such periodical reports and summaries as may be required by the Government;
- (c) such periodical return, accounts, statements and statistics as may be required by the Government;
- (d) information and comments asked for by the Government on any specific point;
- (e) copies of the documents required by the Government; and
- (f) original documents required by the Government for examination or any other purpose.

20. Directives from the Government. — The Government may, from time to time, issue to the Institute such directives and orders as it may consider necessary for carrying out the purposes of this Act and the Institute shall follow and carry out such directives and orders.

21. Discoveries and inventions to vest in the Institute. — All rights relating to discoveries and inventions and any improvements in materials, methods, processes, apparatus or equipment made by any officer or employee of the Institute in the course of his employment shall vest in the Institute.

22. Declaration of fidelity and secrecy. — Every member, advisor, officer or other employee of the Institute shall make such declaration of fidelity and secrecy as may be prescribed.

23. Power to make rules. — (1) The Government may, by notification in the official Gazette, make rules for carrying out the purposes of this Act.

(2) In particular and without prejudice to the generality of the foregoing provision, such rules may provide for—

- (a) the functions and powers of the Chairman, Director General and other functionaries of the Institute;

- (b) the conditions under which the Institute may enter into arrangements or agreements with other institutions, individual organizations, whether public, private or autonomous bodies.

24. Power to make regulations. — (1) The Board may, by notification in the official Gazette, make regulations not inconsistent with the provisions of this Act or the rules made there under, providing for all matters for which provision is necessary or expedient for the purpose of giving effect to the provisions of this Act and the efficient and smooth conduct of the affairs of the Institute.

(2) In particular and without prejudice to the generality of the foregoing provision, the regulations may provide for-

- (a) the criteria for appointment, promotion and other service matters of the employees of the Institute;
- (b) the career structure of the Institute and terms and conditions of service of the employees of the Institute including pension and disciplinary matters;
- (c) the grant of performance based incentives for the motivation of the employees of the institute;
- (d) the conduct of business at the meetings of the Board and the Executive Committee;
- (e) the duties, functions and conduct of the officers and employees of the Institute;
- (f) preparation of annual estimates of income and expenditure and supplementary estimates;
- (g) the use and disbursement of funds earned by the Institute on account of testing, calibration, analysis, sale, training, advisory, consultancy and other services;
- (h) the forms of returns and statements for various purposes;
- (i) the scheme of benevolent funds, group insurance and constitution of general provident fund and welfare fund for the employees of the Institute;
- (j) the investment of the funds of the Institute in various schemes of Government or its financial development institutions for the general welfare of the employees of the Institute;

- (k) the manner in which payments are to be made by or on behalf of the Institute and the officers by whom orders for making deposits or investments or for withdrawals or any other disposal of the income or funds of the Institute shall be authenticated, made or signed;
- (l) extension of medical, housing, transport, loans, grants and other facilities for the well-being and welfare of the employees of the Institute; and
- (m) the custody and use of common seal of the Institute.

25. Continuance of certain rules etc. — All rules, regulations and bye-laws made by the PCSIR in force immediately before the commencement of this Act which relate to provisions of this Act shall *mutatis mutandis*, and so far as they are not inconsistent with any of the provisions of this Act, continue in force until repealed or amended by rules or regulations made under this Act.

26. Repeal and Savings. — (1) The provisions of Weights and Measures (International System) Act, 1967 (V of 1967) and any other law for the time being in force to the extent of the matters covered under this Act shall stand repealed.

(2) Upon the commencement of this Act,-

- (a) all assets, rights, powers authorities and privileges and all property movable or immovable, cash and bank balance, reserve funds, investments and all other interests and rights in or arising out of such property and all debts all liabilities and obligations of whatever kind of the NPSL subsisting immediately before its separation from PCSIR shall stand transferred to and vest in the Institute;
- (b) all debts and obligations incurred or contracts entered into or rights acquired and all matters and things engaged to be done by, with or for the NPSL before its separation and reconstitution as NMIP, shall be deemed to have been incurred, entered into, acquired or engaged to be done by, with or for the Institute;
- (c) all suits and other legal proceedings instituted by or against the NPSL before its separation from PCSIR and reconstitution as NMIP shall be deemed to be suits and legal proceedings by or

against the Institute and may be proceeded or otherwise dealt with accordingly;

- (d) all actions done by the NPSL before the commencement of this Act shall be deemed to be done under this Act;
- (e) all officers and other employees of the NPSL shall, notwithstanding anything contained in any law or in any agreement, deed, document or other instrument, stand transferred to the Institute in accordance with the present terms and conditions of the service applicable to them; and
- (f) on transfer under clause (e), all existing officers and employees shall, within ninety days of the commencement of this Act, exercise an irrevocable option either to become employees of the Institute established under this Act or continue on their existing terms and conditions of service, including their pension, general provident fund, gratuity, housing and other fringe benefits, applicable immediately before commencement of this Act.

STATEMENT OF OBJECTS AND REASONS

National Physical and Standards Laboratory (NPSL) was established in 1974, under Pakistan Council of Scientific and Industrial Research (PCSIR) as a national apex body for maintenance of Primary & Secondary Standards of measurements and for testing & calibration of Standards & equipment. "It deals with the establishment of infrastructure of metrology to implement and operate a unified and coherent national measurement system as per international requirements and practices for quality assurance and management system and to support legal metrology in Pakistan". The organization caters for a limited number of fields of metrology i.e. the Science of measurement which include Mass, Length, Time & Frequency, Electrical, Thermal and Pressure measurements. With growing awareness about metrology, consumer rights and quality of products and services, it was felt that a dedicated Metrology Institute of national level was required to be set up to meet requirements of the international trading partners and WTO obligations. Therefore, National Physical and Standards Laboratory (NPSL) is being separated from PCSIR and established as an autonomous body, directly under the administrative control of Ministry of Science and Technology, as **National Metrology Institute of Pakistan (NMIP)**.

(Chaudhry Fawad Hussain)
Federal Minister for Science & Technology