

[AS PASSED BY THE NATIONAL ASSEMBLY]

A

Bill

to provide for constitution and regulation of Survey of Pakistan

WHEREAS in the view of prevailing circumstances it is expedient to constitute Survey of Pakistan to provide for the regulation of surveying and mapping activities and for the matters connected therewith or ancillary thereto;

AND WHEREAS it is necessary to provide for speedy disposal of such cases and execution in matters connected therein or ancillary thereto;

It is hereby enacted as follows:-

**PART I
PRELIMINARY**

Introductory

1. Short title, extent and commencement.- (1) This Act may called the Surveying and Mapping Act, 2014.

(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) "aerial photography" means the act of taking photographs of any portion of the earth with the help of cameras installed in an aircraft or any sort of air borne vehicle;

(ii) "datum" means an arbitrarily selected reference point, plane or surface to which all measurements are referred including geodetic, vertical and gravimetric datum;

- (iii) "deposit works" means extra departmental jobs carried out on payment basis;
- (iv) "digital maps" means geographic maps produced through satellite images, GPS, total station data or digitized using mapping software;
- (v) "engineering maps" means the large-scale topographical maps on which engineering works of development projects are planned and designed, generally their scale is equivalent or larger than 1:10,000;
- (vi) "gravity datum" means the point to which all gravity measurements are referred;
- (vii) "Government department" means a department controlled by Federal or a Provincial Government and includes any autonomous body, authority or organization established by or under the Federal or a Provincial law or which is owned or controlled or administered by the Federal or a Provincial Government or in which the Federal or a Provincial Government have controlling share or interest and also includes any local Government;
- (viii) "geodetic datum" means the origin or a point to which all horizontal measurements are referred;
- (ix) "geographical maps" means maps that show general configuration of physical features of a certain area on a reference plane;
- (x) "geospatial data" means information collected in hard copy format or in digital format or any other format for the purposes of preparation of geographical or topographical data and its attributes, its processing and analysis;
- (xi) "imagery" means remotely sensed image of any resolution depicting any part of the earth and acquired or obtained using optical or, as the case may be, non-optical sensor;
- (xii) "local plane coordinate system" means a rectangular coordinate system generally used for large-scale mapping;

- (xiii) "mapping" means the art of map-making using specific datum, projection and scale and includes digital mapping;
- (xiv) "national co-ordinate system" means a plane coordinate system as notified by the Federal Government;
- (xv) "National Naming Authority" means the National Naming Authority established under section 19;
- (xvi) "National Spatial Data Infrastructure" means a system of geospatial databases handling facilities capable of interacting with each other for effective use of geospatial data and include set of standards, specifications and policies defining a framework for collecting, sharing, disseminating, processing and carrying out analysis on geospatial data in the most cost effective manner with the key features to allow unrestricted, yet controlled sharing of data for decision support system at strategic, tactical and operational levels;
- (xvii) "prescribed" means prescribed by rules made under this Act;
- (xviii) "photogrammetry" means the art of taking measurements and map-making by using mono or, as the case may be, stereo image of the photographs taken by an aircraft or air borne vehicle or a satellite;
- (xix) "public survey" means a survey in respect of which details are included in the register of public surveys;
- (xx) "registered surveyor" means a person who is registered with the Survey of Pakistan as a land surveyor under this Act and competent to carry out authorized type of survey work, processing and analysis;
- (xxi) "remote sensing" means the method and art by which characteristics of the objects of interest can be identified, classified, measured or analyzed without physical contact;
- (xxii) "registered organization" means any organization or authority or agency of the Government, a private firm or organization duly registered with the

Survey of Pakistan under this Act and competent to carry out authorized type of survey work, processing and analysis;

- (xxiii) "survey" means the act of taking topographic surveying measurements and collection of spatial and non-spatial data for preparing geospatial database, its processing and analysis;
- (xxiv) "satellite" means an artificial body revolving around the earth at some distance;
- (xxv) "Survey of Pakistan" means the department of Survey of Pakistan, which is the national surveying and mapping organization of Pakistan;
- (xxvi) "Surveyor General of Pakistan" means head of the department of Survey of Pakistan;
- (xxvii) "survey mark" means benchmark pillar, iron bolt fixed in rock, a mark engraved on any building, a mark engraved on an in situ rock or a stone embedded in ground, a triangulation point protected by a cairn, a gravity pillar, a leveling benchmark, a fixed mark, hill station, monument or any other station or mark created by the Survey of Pakistan for the purpose of surveying and mapping;
- (xxviii) "sub-standard work" means any survey work which does not conform to the approved specifications and standards as may be prescribed by the Survey of Pakistan;
- (xxix) "topographical data" means data, which shows detailed information about shape, size and relationship of all features and abstract information of the earth, including but not limited to natural and man-made objects or features, geographical names, administrative boundaries and information like elevation, hydrology, vegetation, population and others; and
- (xxx) "vertical datum" means the surface to which all vertical measurements are referred and mean sea level is taken as vertical datum of a country.

PART II

CONSTITUTION OF SURVEY OF PAKISTAN

3. **Constitution of Survey of Pakistan.-** (1) Notwithstanding anything contained in any other law for the time being in force, the Survey of Pakistan” shall be deemed to have been established under this Act.

(2) For efficient administration of Survey of Pakistan, there shall be Surveyor General of Pakistan who shall be appointed by the Federal Government and there shall be other officers and staff as may be appointed by the Federal Government in the prescribed manner.

4. **Offices of Survey of Pakistan.-** Survey of Pakistan shall have its head office at Rawalpindi or Islamabad and shall have offices at Federal, Provincial or district level and such other offices as the Survey of Pakistan may, by notification in the official Gazette, establish.

5. **Administration of Survey of Pakistan.-** Under this Act,-

- (a) superintendence of Survey of Pakistan shall vest in the Federal Government; and
- (b) administration of Survey of Pakistan shall vest in, and be exercised by, the Surveyor General of Pakistan in accordance with the provisions of this Act and the rules made thereunder.

6. **Functions of Survey of Pakistan.-** For carrying out the purposes of this Act, Survey of Pakistan shall-

- (a) be the sole national surveying and mapping organization of Pakistan;
- (b) determine and update geodetic datum and projection system of Pakistan using latest geodetic techniques and technologies;
- (c) determine and update vertical datum using data captured by Survey of Pakistan and obtained from Government departments, registered organizations or any other source having such installations along the coastal line of Pakistan;
- (d) delineate and demarcate international borders and relocate boundary pillars;

- (e) provide geodetic control, heights and geographical positions all over Pakistan;
- (f) advise Federal Government on the practices to be followed in the production of geospatial data as well as surveying and mapping practices and as the case may be in the collection and dissemination of this kind of information needed for geographical information systems (GIS) applications;
- (g) prepare geospatial data, remote sensing and geographical information system applications of the entire country on various scales as advised by the Federal Government and provide above services as a deposit work for a specific area with pre-defined specifications to the Provincial Governments, district and local governments and other clients from public as well as private sector;
- (h) carry out topographic survey, its updation and printing of topographic maps of national map series;
- (i) compile derived maps on various scales as required by the Federal Government;
- (j) generate maps on any scale through aerial photography and remote sensing using analytical and digital methods;
- (k) be responsible to prepare and print guide maps, provincial maps, district maps, road maps, tehsil maps and miscellaneous geographical maps for the whole of Pakistan;
- (l) establish and maintain National Spatial Data Infrastructure (NSDI) of Pakistan;
- (m) be responsible to survey and prepare cantonment areas maps;
- (n) train departmental employees and potential candidates from private sector in various disciplines of surveying, geographical and mapping in the Survey Training Institute at various levels;

- (o) control and coordinate surveying and mapping activities done by registered organizations and individuals and their registration process;
- (p) carry out magnetic survey of entire country in a cyclic order as prescribed by Survey of Pakistan for the purpose of magnetic declination;
- (q) have such other functions as are conferred or imposed on it by or under this Act or any other law; and
- (r) perform such other functions as may be assigned by the Federal Government.

7. **Research and development activities.**- (1) Survey of Pakistan shall encourage and collaborate research activities in the field of surveying and mapping, remote sensing, GIS and other fields related to the discipline of surveying and mapping, cartography, instrument development and database with national and international organizations.

(2) The Survey of Pakistan shall endeavor to upgrade the scientific and technological level in this field and encourage and support any registered organizations and individuals that produce outstanding work in any field of surveying and mapping and related scientific or technological research.

8. **Surveys and demarcation, etc.** - (1) Survey of Pakistan shall be responsible for the delineation and demarcation of international land boundaries of Pakistan, jointly with the national mapping organizations or other organizations as authorized by the neighboring countries, in accordance with mutually agreed protocol and the plans drawn in the light of such protocol before taking up actual demarcation work.

(2) Survey of Pakistan shall carry out surveying and mapping of the province, districts and other administrative boundaries of Pakistan on receipt of requests there for after the alignment thereof has been agreed upon.

(3) Survey of Pakistan may also take up the demarcation of land or state boundaries as a deposit work on mutual agreement of the parties consisting of Federal Government, Provincial Governments, district Governments, semi-government departments, autonomous bodies, private parties or individuals or as ordered by a court of law.

(4) Fifty *per cent* of the money received against the deposit shall be utilized for capacity building of the Survey of Pakistan in accordance with the prescribed procedure.

9. Authorization to enter into any land.- (1) Any person authorized by Survey of Pakistan for the purpose of this section, may in accordance with the applicable law,-

- (a) enter into any land and public building, office or structure for the purpose of carrying out assigned task of collection of spatial or non-spatial data or information subject to applicable laws;
- (b) take measurements in or from any such land from survey mark;
- (c) search for and, if necessary, uncover any existing survey marks in or on any such land; and
- (d) insert new survey marks in or on any such land for the purpose of carrying out any survey under this Act or for the purpose of maintaining or repairing any permanent survey marks.

(2) This section does not entitle any person so authorized, to enter any building or structure on land, other than a building or structure referred to in clause (a) of sub-section (1).

10. Datum, projection and standards.- (1) Survey of Pakistan shall establish and adopt geodetic, vertical and gravimetric datum at national level. This datum shall be adopted in all national activities of surveying and mapping, including those carried out by the Armed Forces of Pakistan and the Geological Survey of Pakistan (GSP).

(2) Survey of Pakistan shall define a unified projection system and system of geodetic coordinates and plane coordinates and shall define classification, order and accuracies of these coordinate systems as may be prescribed.

(3) For the purpose of this section, Survey of Pakistan shall establish independent local plane co-ordinate systems to meet the needs of construction work, urban planning and scientific research activities, which systems may be connected with the national co-ordinate system and shall be kept and maintained as classified information.

11. Registration.- (1) No public or private organization, private firm or individual, national or international, shall undertake any geospatial data collection, production or analysis

work and surveying and mapping activities unless they are registered with Survey of Pakistan for such purpose as may be prescribed. The qualifications of staff and suitability for such work shall also be certified by Survey of Pakistan in the prescribed manner.

(2) Before registration, the Survey of Pakistan shall obtain clearance of such firms, organizations and individuals in accordance with such procedure as may be prescribed.

(3) Sub-sections (1) and (2) shall not apply to operations of geospatial data production, analysis, surveying and mapping carried out by-

- (a) any student of surveying studying in public educational institutions or university; and
- (b) any person who produces geospatial data under immediate supervision of a registered organization, firm or individual.

12. Register.- (1) Survey of Pakistan shall maintain a register for the purpose of geospatial data of public surveys which shall contain details about-

- (a) surveys carried out by the Survey of Pakistan; and
- (b) surveys for which details have been forwarded to the Survey of Pakistan by any registered organization or individual.

(2) The Survey of Pakistan may ensure that public survey conforms with the prescribed standards.

13. Joint survey and mapping and geospatial data production work with foreign companies.- No work related to surveying and mapping, collection and production of geospatial data within Pakistan shall be undertaken by any individual, private firm or Government organization in collaboration with any foreign company or firm or non-governmental organization unless prior written approval is obtained from the Federal Government, observing the requisite channels.

14. Correction of erroneous data.- (1) where it comes to the knowledge of Survey of Pakistan that erroneous data is being or was produced by a registered individual, firm or organization, it -

- (a) may nominate an authorized official to inform by notice in writing requiring such data producer to correct the same within the time specified in the notice; and
- (b) shall have the authority to engage another registered surveyor to make the correction if data producer does not comply with the notice. The defaulting data producer shall be informed to this effect through a written notice.

(2) The data specified in sub-section (1), if not corrected within the time specified therein, shall be immediately forfeited by the Survey of Pakistan and shall not be used for any purpose whatsoever.

(3) Any costs or expenses incurred on work mentioned in sub-section (1) shall be recoverable through a court of competent jurisdiction, as a debt due to the Government, from the registered individual, firm or organization surveyor.

PART III

MANAGEMENT OF GEOSPATIAL DATA

15. Management of geospatial data.- (1) Survey of Pakistan shall establish and maintain National Spatial Data Infrastructure NSDI with the support of key stakeholders to ensure consistent mechanism of maintenance, dissemination and sharing geospatial data among all users by reducing duplication in collection and maintenance of aforesaid data and to enhance and improve objective decision making.

(2) NSDI established and maintained under sub-section (1) shall be for development of a system of geospatial databases and data handling facilities, capable of interacting amongst all stakeholders and ensure putting in place design, implementation and maintenance mechanisms for facilitating, sharing, access and responsible for effective use of geospatial data at an affordable cost.

(3) All basic data or information comprising geodetic data, gravity data, magnetic data, topographical or geographical data, aerial photographs and all relevant records, both analogue and digital, prepared and possessed by Survey of Pakistan shall be maintained in the form of a national geospatial database. Any registered organization developing geospatial data shall in accordance with the procedure prescribed, forward a copy of the data to Survey of Pakistan free of cost for inclusion in the national geospatial database, except the classified data