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Review & Analysis of the Pakistan Green Building Regime - Legal Expert

ESTABLISHMENT OF THE PAKISTAN GREEN BUILDING
CERTIFICATION SYSTEM

GREEN GROWTH. CONSULTANTS (PVT) LTD

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Table of Contents

I.	Introduction.....	1
II.	The Statutory and Regulatory Framework.....	1
A.	Regulation of Construction & Building Control in Pakistan.....	1
	Building Control as a Provincial Subject: Development Authorities, DHAs, Cantonments and Private Housing Societies as Regulators.....	1
	The Building Code and the Engineering Profession.....	5
	Architects as Gatekeepers of Building Design: Untapped Opportunities.....	5
	Environmental Approvals and Building Control.....	6
B.	Regulation of Energy Efficiency Related Standards.....	6
	The 1990 Energy Code.....	6
	The Building Code of Pakistan – Energy Provisions 2011.....	7
	The National Energy Efficiency & Conservation Act 2016.....	9
	Other Energy Efficiency and Green Building-related Interventions.....	13
C.	The National Standards Regime and Certification Systems.....	14
	The development of certifications and standards by government agencies.....	14
	The development of certifications and standards in the private sector.....	15
D.	Financial and Tax Incentives.....	16
III.	Analysis of Gaps and Failures.....	17
IV.	Recommendations for a Path Forward.....	21
	Improving the implementation of Green Building Standards.....	22
	Regular Updates of the Relevant Building Codes.....	24
	Material and Energy Efficiency Standards & Certifications.....	25
	Fiscal and Tax Incentives.....	25

I. Introduction

1. Pakistan does not possess a formal, unified statutory regime addressing the concept and phenomenon of green buildings. Green buildings are distinguishable from energy efficient buildings in that Green buildings represent the practice of developing structures and employing processes that prioritize environmental responsibility and resource efficiency, which goes beyond the singular dimension of energy efficiency.¹ Compared to the narrower focus of the energy efficiency approach, this approach spans the entire life cycle of a building, from initial site selection to design, construction, operation, maintenance, renovation, and eventual demolition. It expands upon and complements the traditional building design considerations of cost-effectiveness, utility, durability, and occupant comfort.
2. In this regard, green buildings circumscribe not just energy efficiency (the first step to green building), but also other important elements including the promotion of water conservation, indoor environmental quality, the use of sustainable construction materials and the reduction of environmental impact and the preservation of natural surroundings.
3. While green buildings are a relatively new policy imperative in Pakistan, there have been attempts dating back to the late 1980s (with varying degrees of success) to both make building codes more energy-efficient and the construction industry as a whole more environmentally friendly. Below, we survey these efforts from a legislative and regulatory perspective and use the locus of green buildings to assess what the potential path forward may be to make green building practices more mainstream in the Pakistani building / construction industry.
4. To do this, we primarily discuss four areas of legislation and regulation: (1) building control (with a corollary discussion of environment protection standards); (2) the energy efficiency regime; (3) the national standards regime; (4) finance and tax.

II. The Statutory and Regulatory Framework²

A. Regulation of Construction & Building Control in Pakistan

Building Control as a Provincial Subject: Development Authorities, DHAs, Cantonments and Private Housing Societies as Regulators

5. The survey of any regulatory landscape necessarily needs to start with an inquiry of where the power to legislate and administer lies. Pakistan is constitutionally a

¹ US Environmental Protection Agency, "Green Buildings" (US EPA 2016), <https://archive.epa.gov/greenbuilding/web/html/about.html>.

² A table collating the various laws, rules, regulations, By-laws and policies discussed in this section have been reproduced at the end of this report in Table 1.

federal republic in which powers to regulate affairs are divided between the Federal and provincial governments respectively. Especially since the 18th Constitutional Amendment to the 1973 Constitution in 2010, the provinces reserve substantial autonomy to legislate, administer and enforce a number of matters in their respective territories. This includes the environmental protection, building control and the regulation of construction, since the federation retains powers to only legislate in respect of these matters to the extent of the Islamabad Capital Territory, or insofar as they bear relation to a federally controlled project, such as the Naya Pakistan Housing and Development schemes.³

6. There are two notable exceptions to this – building control in Cantonment areas across the country, which are governed by the federal Cantonments Act, 1924,⁴ and the various Defence Housing Authorities (“DHA”) across the country which are each governed by a federal law establishing them in each major city in the country.⁵ Furthermore, the Federal Government (through the Ministry of Housing and Works) continues to play a role in developing national policies for housing and development (though these policies are again not binding upon the provinces and merely set priorities for the Federal Government to advance),⁶ as well as promoting interprovincial coordination.
7. At the provincial level, the provincial legislatures have generally conferred quasi-legislative (regulation and bylaw making) powers and enforcement powers on both development authorities through the legislations that create them, and local governments (such as under those established under provincial statutes like the Punjab Local Government Act, 2022,⁷ the Sindh Local Government Act, 2013,⁸ the KPK Local Government Act, 2013,⁹ and the Balochistan Local Government Act, 2010¹⁰). Due to primarily political challenges in making local governments functional, a discussion of which is beyond the purview of this Report, building control is primarily enforced and administered by development authorities within the areas of their jurisdiction. Each development authority usually has jurisdiction over an area roughly equal to the size of a district. As stated above, cantonments and DHAs within these areas fall outside the jurisdiction of the development authority and come within the purview of either the Cantonment Board established under the federal Cantonment Act, 1924 to administer that particular cantonment, or the DHA, established under the parent DHA

³ See, Naya Pakistan Housing Development Authority Act, 2020.

<<https://naphda.gov.pk/naphda.gov.pk/docs/NAPHDA%20ACT%202020.pdf>>

⁴ Cantonments Act 1924 (as amended by the Cantonments (Amendment) Act 2023).

<https://pakistancode.gov.pk/english/UY2FqaIw1-apaUY2Fqa-ap2Z-sg-jjjjjjjjjjjj>

⁵ Defence Housing Authority Lahore Order, 2002 establishes DHA Lahore; Authority Rawalpindi Act, 2013 establishes DHA Rawalpindi/Islamabad; The Pakistan Defence Housing Officer Order 1980 established the DHA Karachi.

⁶ See, for example, the National Housing Policy, 2001. <

<https://mohw.gov.pk/SiteImage/Misc/files/National%20housing%20policy%202001.pdf>>

⁷ <https://punjablaws.gov.pk/laws/2857.html>

⁸ <http://www.pas.gov.pk/uploads/acts/Sindh%20Act%20No.XLII%20of%202013.pdf>

⁹ https://www.lgkp.gov.pk/wp-content/uploads/2021/07/THE_KHYBER_PAKHTUNKHWA_LOCAL_GOVERNMENT_ACT_2013.pdf

¹⁰ https://pabalochistan.gov.pk/pab/pab/tables/alldocuments/actdocx/2019-11-15_15:29:42_5a2af.pdf

statute. In some circumstances, building control is only indirectly administered through developers of private housing schemes, or not at all and left to private bodies, such as in the case of cooperative housing society like the Model Town Cooperative Housing Society (“MCS”) in Lahore.

8. There are also some federal housing projects administered by the Federal Government which are as a result subject to regulation by federal authorities. The most notable of these is the Naya Pakistan Housing Scheme, a low cost housing project announced by the Federal Government in 2020.¹¹ This scheme is administered by the Naya Pakistan Housing and Development Authority under the Naya Pakistan Housing and Development Authority Act, 2020.¹² Though interest (and momentum) in this scheme has diminished since the ouster of the PTI government that introduced it, the Naya Pakistan Housing Scheme is a example of a development agency developing and attempting to implement green building standards, and is therefore of interest for the purposes of this report. A brief discussion of these green building standards follows further below in the “Regulation of Energy Efficiency Related Standards” section.
9. The location of a residential or commercial building project determines which authority is the concerned building control authority whose rules, regulations and bylaws must be adhered to in order to gain the necessary building permits, site-map approvals, inspection clearances, and completion certificates to successfully navigate its construction.
10. The table below summarizes some notable agencies and authorities in major cities that exercise building control powers, and the building control measures they presently enforce:

Name	Governing Legislation	Power to administer & legislate	Building Regulation
CDA	The Capital Development Authority Ordinance, 1960 ¹³	Federal	Islamabad Residential Sectors Zoning (Building Control) Regulations, 2020 ¹⁴
LDA	The Lahore Development Authority Act, 1975 ¹⁵	Provincial (Punjab)	Lahore Development Authority Building and Zoning Regulations 2019 (amended up till 2020) ¹⁶

¹¹ <https://naphda.gov.pk/>

¹² <https://naphda.gov.pk/naphda.gov.pk/docs/NAPHDA%20ACT%202020.pdf>

¹³ <https://www.cda.gov.pk/documents/docs/cda-ordinance-1960.pdf>

¹⁴ <https://www.cda.gov.pk/documents/docs/buildingRegulations2020.pdf>

¹⁵ <https://punjablaws.gov.pk/laws/308.html>

¹⁶ https://lda.gov.pk/website/images/Amended_Building_Regulations_2019_with_amendment_approved_till_28_01_2020.pdf

Cantonment Board Clifton, Karachi	The Cantonments Act, 1924 ¹⁷	Federal	The Cantonment Board Clifton Building By-Laws, 2007 ¹⁸
SBCA	Sindh Building Control Ordinance, 1979 ¹⁹	Provincial (Sindh)	The Karachi Building & Town Planning Regulations, 2002
DHA Islamabad / Rawalpindi	Defence Housing Authority Rawalpindi Act, 2013 ²⁰	Federal	DHA Islamabad/ Rawalpindi By-Laws and Regulations Revised 2022 ²¹
DHA Lahore	Defence Housing Authority Lahore Order, 2002 ²²	Federal	DHA Construction & Development Regulations 2014 ²³
Naya Pakistan Housing and Development Authority	Naya Pakistan Housing and Development Authority, 2020 ²⁴	Federal	Standardization of Building Codes Standards and Specifications for Low-Cost (Affordable) Units - 2021 ²⁵

11. The building control regulations surveyed (listed above) show no consistent patterns. While each building control agency administers its regulations through a system of pre-construction approvals, permissions, no objection requirements, building plan approvals and other related measures, the requirements that building plans need to comport to vary. While some reference the Building Code of Pakistan (discussed further below) as the metric along which seismic, structural, and material requirements need to be measured against (in the case of the LDA Building Regulations also requiring compliance with the Building Code's energy related provisions), there is no consistent practice. Some even stipulate compliance with foreign standards, such that structure analysis, design, detailing and loading should be *"in accordance with the requirements of current Uniform Building Code and American Code or British relevant Code or any other Code."*²⁶
12. This can probably be accounted for by a lack of any central coordination mechanism between these various authorities in respect of building control requirements, the absence of any central guidance on the provincial or national goals of building control, or even what best current practices may be.

¹⁷ <https://lcb.gov.pk/assets/media/cantonments-act-1924.pdf>

¹⁸ <https://cbc.gov.pk/assets/media/cbc-building-By-laws-2007-final.pdf>

¹⁹ <http://www.sindhlaws.gov.pk/setup/publications/PUB-22-000006.pdf>

²⁰ <https://pakistancode.gov.pk/english/UY2FqJw1-apaUY2Fqa-apaUY2Fqblc%3D-sg-jjjjjjjjjjjj>

²¹ <https://serv4.dhai-r.com.pk/storage/app/media/DHAI%26R%20By%20Laws%20-%202022.pdf>

²² <https://nasirlawsite.com/laws/dhalo.htm>

²³ <https://dhalahore.org/wp-content/uploads/2021/06/DHA-Construction-Regulaiton-2014-Updated.pdf>

²⁴ <https://pakistancode.gov.pk/english/UY2FqJw1-apaUY2Fqa-apaUY2NpZ5s%3D-sg-jjjjjjjjjjjj>

²⁵ [https://naphda.gov.pk/naphda.gov.pk/docs/Standardization%20of%20Building%20Codes,%20Standards%20and%20Specifications%20for%20Low-Cost%20\(Affordable\)%20Units%20-%202020May%202021.pdf](https://naphda.gov.pk/naphda.gov.pk/docs/Standardization%20of%20Building%20Codes,%20Standards%20and%20Specifications%20for%20Low-Cost%20(Affordable)%20Units%20-%202020May%202021.pdf)

²⁶ Cantonment Board Clifton, Karachi Building By-laws, 2007, By-law 70. <
<https://sindhzameen.gos.pk/pdf/Building%20By-Laws%202007.pdf>>

13. Building codes and regulations administered by various building control authorities also provide for standards for the testing of materials. For example, the Cantonment Board Clifton, Karachi requires that “Regular testing will be carried out of materials such as aggregates, cement, concrete, reinforcing steel and all architectural materials, the quality control and quality assurance criteria laid down in standards of FIDIC, American Standard Testing method (ASTM), OR ACI or UBC and project specifications, quality assurance programme of architect or engineer may also be followed.”²⁷ However, the building control authorities in question have scant, if any, mechanism available to either enforce or verify compliance in respect of such requirements and provisions. Some of them, as this example demonstrates, can also be so vague as to essentially become irrelevant or immaterial.

The Building Code and the Engineering Profession

14. The Building Code of Pakistan is a consolidated construction code created and periodically by the Pakistan Engineering Council (the “PEC”), the apex statutory body charged with licensure and regulation of the engineering profession. The PEC was created by the Pakistan Engineering Council Act, 1975 which is a Federal law, and is enforced federally (with policy input from the federating units through the Council of Common Interest).
15. The Building Code of Pakistan is by itself a non-binding code detailing the minimum standards engineers ought to follow for the “construction, alteration, relocation, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.”²⁸ The Building Code of Pakistan 2021 (“BCP 2021”) is the most recent iteration, having succeeded the Building Code of Pakistan 1986, and is based substantially on the 2021 International Building Code, the 2021 International Performance Code for Buildings and Facilities and the 2021 International Zoning Code.²⁹ Once construction is complete, a distinct legal framework for post-completion building maintenance is lacking in Pakistan. Building owners have the freedom to decide on maintenance and improvements at their discretion.³⁰

Architects as Gatekeepers of Building Design: Untapped Opportunities

16. Besides structural or consultant engineers, who are almost universally required to certify the structural aspects of a building within the jurisdiction of each building authority discussed above, there is an equal, if not more significant role ascribed to architects, who bear the primary responsibility of certifying and submitting a building plan and drawings to the building control authority for approval. Each set of building

²⁷ See, for example. Cantonment Board Clifton, Karachi Building By-laws, 2007, By-law 78. <<https://sindhzameen.gos.pk/pdf/Building%20By-Laws%202007.pdf>>

²⁸ Building Code of Pakistan, 2021, Section 101.2

²⁹ Ibid, Source Documents, , p.vii.

³⁰ “Data Collection Survey on Energy Efficiency and Conservation in the Building Sector in Pakistan, Japan International Cooperation Agency (JICA) Study (2016), p.2-24. Web <https://openjicareport.jica.go.jp/670/670/670_117_12249256.html>

regulations for each building authority codifies this role,³¹ and may even require parties engaging in construction to acquire certification only from architects registered with that particular building authority.³²

17. The profession of architecture is more broadly regulated under the Pakistan Council of Architects and Town Planners Ordinance 1983³³ (also a federal statute – the “PCATPO”), by the Pakistan Council of Architects & Town Planners (“PCTAP”), whose members are appointed by the Federal Government.³⁴ There are by-laws prepared under the PCATPO which govern the professional ethics and standards of licensed architects and town-planners. Needless to say, green building practices and energy efficiency related standards have scant, if any, mention these by-laws – the only obligation placed on architects is to “advise on the efficient use of energy in new and existing buildings.”³⁵

Environmental Approvals and Building Control

18. In addition (and in supplement) to the broader building control regulatory framework, each province’s environment protection statute (such as the Punjab Environmental Protection Act 1997), also provides for the necessity of an environmental impact assessment (EIA) or initial environmental examination (IEE) for the construction of certain projects anywhere in the province from the province’s environmental protection agency.³⁶
19. Building by-laws and regulations for most building control authorities recognize the need for EIAs and IEEs and make it a prerequisite for obtaining these prior to being granted approval for drawing and site maps to commence construction. It is worth noting however, that EIAs and IEEs are not required for every kind of construction or development, but it does cover a number of important residential and commercial constructions, such as housing schemes, apartment buildings, restaurants, urban development projects, and hotels.³⁷

B. Regulation of Energy Efficiency Related Standards

The 1990 Energy Code

³¹ See, for example, DHA Lahore Building Regulations 2014, Reg. 14, 15(t), 43 and 64.

³² Ibid, Reg. 64.

³³ <https://pakistancode.gov.pk/english/UY2FqaJw1-apaUY2Fqa-bpmY-sg-jjjjjjjjjjjj>

³⁴ Ibid, section 3 and 4.

³⁵ Code of Professional Conduct, Architects Appointment, Part 2 – Other Services, 2.10. <
<https://pcatp.org.pk/document/PCATP%20Hand%20Book.pdf>>

³⁶ See, for example, the Punjab Environmental Protection Act 1997, Section 12. <
<https://punjablaws.gov.pk/laws/2192a.html>> . The environment is also a legislative and administrative subject that has been devolved to the provinces. Prior to the 18th Amendment, there was a central Pakistan Environment Protection Act 1997, which now only applies to the Islamabad Capital Territory.

³⁷ See, the Punjab Environmental Protection (Review of Initial Environmental Examination and Environmental Impact Assessment) Regulations 2022, Regs. 3, 4 and 5 read with Schedules I and II.

20. The discourse on implementation of energy-related provisions in the construction of residential and commercial buildings in Pakistan has its roots in the Building Energy Code of Pakistan, 1990.³⁸
21. The Building Energy Code of Pakistan 1990 (the “**1990 Energy Code**”) was a set of recommendations prepared by the National Energy Conservation Centre (ENERCON), a department of the Planning & Development Division of the Federal Government for the benefit of the Ministry of Housing & Works.³⁹ It appeared to be fundamentally motivated by the Government’s realization that buildings accounted for 40% of the total electricity consumed in Pakistan, and there was a 14% annual increase in demand by buildings, which warranted a new set of standards aimed at reducing the energy consumption of buildings.⁴⁰ While ENERCON indicated that the 1990 Energy Code would form a part of the Building Code of Pakistan 1986 (which was the latest iteration of the national building code at the time – the “**1986 Building Code**”), it was not immediately mandatory to comply with,⁴¹ and ENERCON viewed it as a guidance document, supplemented by a Compliance Handbook,⁴² and workshops / seminars with building professionals that would help familiarize the industry with the concept. Once this familiarity was developed, ENERCON suggested that the 1990 Energy Code be made mandatory to comply with.⁴³
22. Thematically, the 1990 Code was mostly based on the American Society for Heating, Refrigerating and Air-Conditioning (“**ASHRAE**”) standards, setting minimum performance standards for building windows and openings, heating, ventilating and air- conditioning (HVAC) equipment and lighting, ENERCON also made attempts to account for Pakistan’s unique weather and climatic conditions by adopting separate standards for each of the five (05) climatic zones identified in the 1986 Building Code.⁴⁴

The Building Code of Pakistan – Energy Provisions 2011

23. From 2003 to 2012, the Ministry of Housing & Works together with ENERCON ran an Awareness Campaign of Energy Conservation and Environment with the apparent aim of increasing awareness about the 1990 Energy Code.⁴⁵ During this time, there were efforts to also update the 1990 Energy Code, but a 2012 effort to commission the

³⁸ *Building Energy Code of Pakistan*, prepared by the National Energy Conservation Centre (ENERCON), Planning & Development Division, Government of Pakistan (1990) <
<https://www.humanitarianlibrary.org/sites/default/files/2013/05/buildingecp.pdf>>

³⁹ Ibid.

⁴⁰ Ibid, Preface.

⁴¹ Ibid.

⁴² Ibid.

⁴³ Ibid.

⁴⁴ Ibid, Clause 1.4 – Applicability.

⁴⁵ "Data Collection Survey on Energy Efficiency and Conservation in the Building Sector in Pakistan, Japan International Cooperation Agency (JICA) Study (2016), p.2-35. Web
<https://openjicareport.jica.go.jp/670/670/670_117_12249256.html>

National Energy Services Pakistan (NESPAK),⁴⁶ was not able to take off,⁴⁷ and ENERCON ultimately engaged with the PEC to both update the 1990 Energy Code as well as formally incorporate it into the 1986 Building Code.⁴⁸ On 28 March 2013, the Building Code of Pakistan – Energy Provisions 2011 (the “**2011 Energy Provisions**”) became both the successor of the 1990 Energy Code and a formal (binding) regulation under the PEC (Conduct & Consulting) By-Laws 1986, which prescribe professional standards for engineers, and which make non-compliance / non-observance of the 2011 Energy Provisions **mandatory** at the risk of misconduct proceedings on grounds of violation of professional engineering work.⁴⁹

24. The 2011 Energy Provisions aim to establish energy efficiency standards for buildings. They are substantially an adaption of the ASHRAE standards 90.1-2004, with the exception of Section 4, which has been tailored to accommodate the energy codes of regional countries and local environmental considerations.⁵⁰
25. The 2011 Energy Provisions delineate the scope, considering building size, construction type, applicable systems, exemption criteria, and priority in case of conflicting provisions. The Provisions encompass the regulation of building components and facilities such as building envelopes, mechanical systems and equipment (including HVAC), service water heating, lighting, and electrical power and motors.⁵¹
26. The 2011 Energy Provisions only apply to buildings of a certain scale and scope, encompassing buildings and building clusters with a total connected load of 100kW or more, a contract demand of 125 kVA or more, a conditioned area of 900 m² or more, or unconditioned buildings with covered areas of 1,200m² or more.⁵² Furthermore, the Provisions only apply to new buildings and their systems, new portions of existing buildings and their systems (if they exceed the specified area or load limits), new systems and equipment in existing buildings, and an increase in electricity load beyond the aforementioned limits.⁵³ They do not cover buildings that exclusively use sources other than electricity or fossil fuel, government-notified historically significant

⁴⁶ The National Engineering Services Pakistan (NESPAK) is a Pakistan-based multinational state-owned enterprise and an energy contractor which provides consulting, construction, engineering, and management services domestically and internationally. Web< <https://www.nespak.com.pk/>>

⁴⁷ Data Collection Survey, JICA, p.2-35.

⁴⁸ Ibid.

⁴⁹ See, PEC (Conduct and Consulting) Bylaws 1986, Bylaw 11 (Application of Building Code of Pakistan (1) (Energy Provisions-2011). The Energy Provisions apply to apply for engineering design of buildings and building clusters that have a total connected load of 100 Kilo Watts or greater, or a contract demand of 125 KVA or greater, or a conditioned area of 900 m² or greater, or un-conditioned buildings of covered area of 1,200 m² or more. S.R.O. 249(I)/2013, notified by the Ministry of Science and Technology, amends the Pakistan Engineering Council (Conduct and Practices of Consulting Engineers) Bylaws 1986 to formally incorporate the Building Code of Pakistan Energy Provisions 2011. Web<<https://www.pec.org.pk/wp-content/uploads/2021/05/S.-R.-O.-249-I-for-Building-Code-of-Pakistan-Energy-Provisions-2011.pdf>>

⁴⁹ Data Collection Survey, JICA, p.2-36.

⁵⁰ Data Collection Survey, JICA, p.2-36.

⁵¹ 2011 Energy Provisions, Section 2.2.

⁵² 2011 Energy Provisions, Section 2.1.

⁵³ Ibid.

and heritage buildings, as well as equipment and building system parts utilized solely for manufacturing processes.⁵⁴ They also do not take precedence over relevant safety, health, or environmental codes; they must yield to these provisions.⁵⁵

27. Although the PEC formally has the power to police and enforce the compliance of the 2011 Energy Provisions, as a practical matter it is nearly impossible for it to do so because it has no formal role in the building control process and is not in charge of vetting and providing approval for building plans. At present, the most the PEC can do is initiate misconduct proceedings upon a report that a consultant engineer has failed to comply with the 2011 Energy Provisions.
28. The only institutions that are administratively capable of enforcing the 2011 Provisions or other similar building code related regulations are the concerned building control authorities discussed above. However, the various building control authorities have been slow to formally incorporate the 2011 Energy Provisions,⁵⁶ and for that matter even the Building Code of Pakistan, into their building regulations. The table below summarizes references to, and mandates for compliance with, the 2011 Energy Provisions in the regulations of some building control authorities:

Name	Building Regulation / Bylaws	Incorporation of 2011 Energy Provisions?
Capital Development Authority	Islamabad Residential Sectors Zoning (Building Control) Regulations 2020	No
Lahore Development Authority	Lahore Development Authority Building and Zoning Regulations 2019 (amended up till 2020)	Yes
Sindh Building Control Authority	The Karachi Building & Town Planning Regulations, 2002	Not expressly, but references the BCP more broadly
DHA Islamabad / Rawalpindi	Building By-Laws DHA Islamabad/ Rawalpindi Revised 2022	No
DHA Lahore	DHA Construction & Development Regulations 2014	No

The National Energy Efficiency & Conservation Act 2016

29. By 2014, local and international development agencies began calling for the establishment of a stand-alone energy efficiency and conservation framework at the national/federal level to address the growing energy crisis. In its 2016 report, the Japanese International Cooperation Agency (“JICA”) documented the growing calls for such a regime and reiterated its need by drawing parallels to the implementation and relative success of such an infrastructure in Japan.

⁵⁴ Ibid, Section 2.3.

⁵⁵ Ibid, Section 2.4.

⁵⁶ Ibid.

efficiency standards, labelling, incentives and fines,⁶⁶ and the establishment of organizations to promote its objectives.⁶⁷

33. More importantly, NEECB is charged with the supervision of a new body, also created by the NEECA Act, called the Pakistan Energy Efficiency and Conservation Authority (“NEECA”).⁶⁸ NEECA steps into the shoes of ENERCON as the focal federal agency for *“initiating, catalyzing, carrying out and coordinating the implementation of all energy conservation programs in all sectors of economy.”*⁶⁹
34. NEECA, having a broad mandate, has a number of powers and functions, including the development and implementation of policies, programs, and projects related to energy efficiency and conservation. The Authority is also responsible for conducting research and development activities, as well as providing technical assistance and training to stakeholders.⁷⁰ It is charged with preparing and updating the national energy conservation policy, recommending national energy efficiency standards, establishing accredited laboratories for conducting tests and analysis, undertaking inquiries and investigations into energy conservation issues, carrying out energy audits, directing energy use assessment, and potentially prohibiting manufacture, sale or import of non-energy efficient equipment and appliances.⁷¹ One independent means of achieving this, as provided through the NEECA Act is through NEECA’s power to certify and appoint energy auditors, who have the power to make an examination of energy consumption in a project and to prescribe means for its conservation.⁷²
35. Most recently, under its prescriptive powers, NEECA has prepared a National Energy Efficiency and Conservation Policy, 2023,⁷³ which remains on the agenda of the Council of Common Interests (a constitutional body composed of representation from both the federation and the provinces that has oversight of matters with an interprovincial nexus, specifically those listed in Part II of the Federal Legislative List of the Constitution of Pakistan) but has yet to be accorded approval.
36. In addition to the NEECB and NEECA, the Federal and Provincial Governments also have important roles to play under the NEECA Act. The Federal Government has the power to, among other things, set standards and issue directions in writing to any person, officer, authority, or designated consumer for the efficient use of energy and its conservation.⁷⁴ These directions may include regulating the norms for process and energy consumption standards in any industry or building, as well as regulating the energy consumption standards for equipment and appliances. It specifically has the

⁶⁶ NEECA Act, Section 4.

⁶⁷ Ibid, Section 5.

⁶⁸ NEECA Act, Section 6.

⁶⁹ Ibid, Section 7(a)

⁷⁰ Ibid, Section 7.

⁷¹ Ibid.

⁷² Ibid, Section 7(s)

⁷³ The National Energy Efficiency Policy (2023), prepared by NEECA.

[https://neeca.gov.pk/SiteImage/Policy/NEEC%20Policy%202023-1%20\(1\).pdf](https://neeca.gov.pk/SiteImage/Policy/NEEC%20Policy%202023-1%20(1).pdf)

⁷⁴ NEECA Act, Section 10.

power to prescribe and amend energy conservation building codes, and direct designated consumers to comply with the provisions of energy conservation building codes, to prescribe standards for energy auditors, and to prescribe penalties for energy inefficient apparatus, appliances, equipment, plant and machinery.⁷⁵

37. The Federal Government also has the power to issue energy saving certificates to consumers, and stipulate the standards and regulations in accordance with which they will be granted.⁷⁶ The NEECA Act itself envisions one benefit for these certificates – that they can be sold to people whose energy consumption is in excess of the prescribed standards – essentially looking to emulate the concept of markets for carbon credits by proposing a kind of energy efficiency credits market.⁷⁷
38. Provincial governments have powers similar to the Federal Government to require compliance with the energy building codes and are expected to appoint designated departments or agencies to coordinate with NEECA in implementing the terms of the NEECA Act. At present, the Sindh Energy Efficiency and Conservation Agency (SEECA),⁷⁸ the Pakhtunkhwa Energy Development Organization (PEDO),⁷⁹ the Punjab Energy Efficiency and Conservation Agency (PEECA),⁸⁰ and the Baluchistan Energy Department, Government of Baluchistan appear to be in line to fulfil this role, though the ability and willingness to make these agencies functional in this regard can be substantially improved. These designated agencies are intended to have inquiry, investigative and energy audit related powers.⁸¹
39. The NEECA Act also provides for the possibility of energy conservation tribunals to be notified, but to date, no such tribunals appear to have been notified by the Federal Government.⁸²
40. NEECA has already published a national Energy Conservation Building Code in 2023,⁸³ and the Punjab Energy Efficiency Agency has a nearly identical version of it available on its website as a draft Energy Efficiency & Conservation Building Code of Punjab, 2017.⁸⁴ However, a fundamental problem that remains is that ultimately the time for consideration of these codes is during the process of gaining approvals for the construction of a commercial or residential building, which process is still entirely

⁷⁵ Ibid, Section 10(k)(l)(p)(q) and (r).

⁷⁶ Ibid, Section 11(1).

⁷⁷ Ibid, Section 11(2).

⁷⁸ <https://www.sindhenergy.gov.pk/>

⁷⁹ <https://pedokp.gov.pk/>

⁸⁰ <https://peeca.punjab.gov.pk/>. It appears that while the Punjab Energy Efficiency and Conservation Agency (PEECA) is functional, it hasn't formally been notified as a Designated Agency under the NEECA Act yet, a matter that PEECA has been drawing the Punjab Governments attention to as late as October 2023. See "NEECA asks Punjab and KP to establish their EEC Agencies" *Business Recorder*. 28 October 2023. Web. <https://www.brecorder.com/news/40270463/neeca-asks-punjab-kp-to-establish-their-eeec-agencies>

⁸¹ NEECA Act, Section 18.

⁸² Ibid, Section 19.

⁸³ <https://neeca.gov.pk/NewsDetail/ZDY0NTY2MzAtNDBjNi00ODIyLWFkMzgtN2MzMTBmNGNhYTc3>

⁸⁴ Draft Punjab Energy Conservation Building Codes - 2017

<<https://peeca.punjab.gov.pk/system/files/ECBC%20Draft%20Document.pdf>>

regulated and administered by the various building control authorities, none of whom have yet introduced procedures, requirements or guardrails to ensure that engineers and architects are signing certificates and furnishing building plans after duly considering the requirements of these new codes.

41. Not only that, but it appears that even though the PEC has been involved with (and has indeed been pivotal to) the creation of the national Energy Efficiency Building Code, it has not yet been notified either as a component of the Building Code of Pakistan, or as an update to the 2011 Energy Provisions, with the absence of the latter measure meaning that consulting engineers are not actually required to use it. However, sources in the PEC and NEECA suggest that, as of the date of writing of this report, there are ongoing consultations to formally notify the 2023 Energy Efficiency Code as a successor to the 2011 Energy Provisions.

Other Energy Efficiency and Green Building-related Interventions

42. There have been some initiatives by the Federal Government to encourage the adoption of green building codes and standards, at least to the extent of federally administered projects. The Ministry of Climate Change and Environmental Coordination (“**MoCC**”) has taken an important role in this regard. While the MoCC has no direct role in the regulation or enforcement of green building standards, as the Ministry that acts as the focal point of the Federal Government as regards to climate change and environmental degradation and its impacts, it has undertaken a number of steps to encourage the adoption of practices that result in a better national environment and forestall the risks and anticipated consequences of climate change.⁸⁵ The Ministry is also actively engaged as part of Pakistan’s international carbon emissions reduction obligations. These obligations are directly linked with the construction industry in Pakistan which as discussed earlier, plays a significant role in the carbon production of the country. Most relevantly for the purposes of this report, the MoCC is currently engaged in the Climate Resilient Urban Human Settlements Unit project which seeks to develop and strengthen the capacity of city administrations to assess the emission targets and adopt low-carbon energy-efficient comprehensive action plans to convert their urban-heat islands into “Climate Resilient Cities”, towards fulfilling international commitments of the Federal Government. The project involves coordination and collaboration with the Pakistan Urban Planning & Policy Centre at the Ministry of PD&R (Planning, Development& Reforms); along with the UN-Habitat (Pakistan); all provincial urban units; and the Line Departments of P&D; Local Governments; Housing & Urban Development of the Governments of Gilgit & Baltistan and the AJK.⁸⁶

⁸⁵ Recent projects undertaken by the MoCC include the “Ten Billion Trees Tsunami Program” and the “Climate Resilient and the Urban Human Settlements Unit”.

⁸⁶<https://mocc.gov.pk/ProjectDetail/NGRhYjMxMzAtZGJmMS00NjA2LWFjYWVlZWlWZjI5MjExM2Vi>.

43. According to industry insiders, specifically in the context of green building codes and standards, the MoCC has been coordinating and collaborating other federal entities, such as the PEC and NEECA in order to draft and promulgate green building codes which are applicable throughout Pakistan. While no drafts have been made available for public review, we understand that the Energy Efficient Building Code is being used as the underlying document for purposes of establishing a unified regulatory and enforcement regime.
44. Prior to this, the Federal Government received funding to prepare a green building code for implementation as part of its Five Million Housing Programme, and a group steered by SWITCH-Asia prepared the *Model Green Building Code Provisions for Five Million Housing Programme in Pakistan*.⁸⁷ As the name suggests though, these are model building code provisions, and do not have the force of law.

C. The National Standards Regime and Certification Systems

45. Pakistan does not yet have any official accreditations or standards recognized by the government for green buildings. There have been some efforts to introduce product certifications for energy-efficient appliances, most recently under the new energy efficiency and conservation regime introduced by the NEECA Act, such as NEECA's efforts to implement energy efficient certifications for fans,⁸⁸ but progress on that front has faced delays and can be improved.

The development of certifications and standards by government agencies

46. There is a federal regime in place for national standards, with a reasonable degree of private sector participation for the purposes of performing assessments on the basis of officially notified standards. For standards and quality control, the Pakistan Standards and Quality Control Authority, established by the Pakistan Standards and Quality Control Authority Act 1996 ("PSQCA Act 1996"), has been the main body in charge of, among other things, providing grading and setting quality labelling standards for ingredients, performance, specification, usage, methods and other relevant quality control matters as well as grading the products when requested by manufacturers, or whenever necessary for the purpose of quality improvement.⁸⁹ The PSQCA also has the power to prohibit, manufacture, keeping in stock and sale of certain articles that do not conform to Pakistan Standards, as well as to prohibit their export, registration or even use of a name.⁹⁰

⁸⁷ <https://www.switch-asia.eu/resource/model-green-building-code-provisions-for-the-five-million-housing-programme-in-pakistan/#:~:text=EU%20SWITCH%2DAsia%20in%20collaboration,Code%20Provisions%2C%20based%20on%202018>

⁸⁸ See, NEECA Energy Efficiency Standards And Labelling Scheme.

<<https://neeca.gov.pk/Detail/OGQ5MDVmMjQtZjA5Yy00ZWZmLWJiNGUtOTYxN2Y3YmEwNWwM>>

⁸⁹ PSQCA Act 1996, S.8.

⁹⁰ Ibid, Ss. 11, 12, 13 and 14.

47. There is some overlap here since 2016, since NEECA possesses similar powers,⁹¹ but there has been some degree of consensus that since PSQCA has superior resources, pre-existing infrastructure and an established track record in devising and implementing quality standards, it is probably better suited to leading the effort on the creation and adoption of Pakistan Standards for energy efficiency and green labelling with supplementary assistance from NEECA.
48. In fact, the PSQCA has already been collaborating with NEECA to produce Pakistan Standards for energy efficiency of certain products. There is already a Pakistan Standard for “Comfort Fans and Regulators for Household and Similar Purposes.”⁹² Similarly, we see a clearer division of roles between NEECA and PSQCA’s roles through the introduction of the draft National Energy Efficiency Authority (Pakistan Energy Labels) Regulations,⁹³ through which NEECA proposes to itself take on the authority of registering and implementing Pakistan Energy Labels, but only on the basis of Energy Star Rating prescribed by the PSQCA, and on the basis of Minimum Energy Performance Standards (MEPS) also adopted by the PSQCA and approved by NEECA.⁹⁴
49. Under these Energy Label Regulations, there is also finally an attempt to introduce mandatory requirements for certain household products, such as room air conditioners, motors, fans, house hold refrigerating appliances and LED Lights to be energy efficient, and a prohibitions on manufacturers, assemblers and importers from procuring and selling inefficient appliances,⁹⁵ as well as a registration and certification mechanism,⁹⁶ so there is more legal infrastructure in place to push for more energy efficient certification and labelling.
50. Consultations around introducing these regulations continue,⁹⁷ but there is no news on their notification.

The development of certifications and standards in the private sector

51. Global recognition according to the LEED certifications granted by the U.S. Green Building Council has also spurred interest internationally in the creation and adoption of private green building codes and certifications. In Pakistan, the Pakistan Green Building Council (“PGBC”), which is a not-for-profit organization, is posturing itself as the “*only organization in the country advocating, promoting, developing Pakistan specific*

⁹¹ NEECA Act, 2016, Section 7.

⁹² <https://www.psqca.com.pk/Electrotechnical/PS%201%202021%20Rev%203%202021%20Final.pdf>

⁹³ <https://neeca.gov.pk/SiteImage/Misc/files/Pakistan%20energy%20label%20regulations.pdf>

⁹⁴ Ibid, 2022 Draft Regulations, Reg.2 (Definitions).

⁹⁵ Ibid, Reg. 3.

⁹⁶ Ibid, Reg. 4.

⁹⁷ “Energy efficient technologies crucial to cope energy crises: Khwaja Asif” AP Pakistan. Web. Accessed 21 November 2023. <https://www.app.com.pk/national/energy-efficient-technologies-crucial-to-cope-energy-crises-khuawaja-asif/>

*green guidelines and certifying sustainable building practices and product.*⁹⁸ The PGBC is a prospective candidate for membership with the World Green Building Council.

52. It appears that PGBC has not yet framed independent guidelines for Pakistan, but it continues to promote or facilitate the acquisition of the LEED and SEED standards administered by the World and U.S. Green Building Council.⁹⁹ While there is limited public reporting on the activities of the PGBC, they enjoy the patronage and support of notable industry participants (such as Bani Mukhtar, which is a leading builder and a founding member of the PGBC),¹⁰⁰ and also find mention in the Securities and Exchange Commission of Pakistan (“SECP”)'s latest Green Bond guidelines, as a body whose standards would be recognized for the purposes of identifying and validating the issuance of bonds for green building projects.¹⁰¹

D. Financial and Tax Incentives

53. Currently, there are very limited, if any, tax and fiscal benefits available for energy efficient construction or green buildings.
54. At the federal level, the Federal Board of Revenue (“FBR”) administers several federal taxes and levies, most notably income tax under the Income Tax Ordinance 2001, sales tax on goods under the Sales Tax Act 1990, federal excise duty under the Federal Excise Act 2006 and customs duties under the Customs Act 1969.¹⁰² The Federal Government has afforded waivers and reductions to custom duties and sales tax on solar panels, but there are no concessions currently available to green building materials. Fiscal and tax-based incentives are a good policy to spur the adoption of new policies or to encourage new sectors. For instance, the Income Tax Ordinance 2001 already contains mechanisms for the grant of tax credits based on the securing of various certifications (e.g. not for profit certification from the Pakistan Centre for Philanthropy, or certifications for I.T service providers by the Pakistan Software Export Board).
55. At the provincial level, each province also administers a series of taxes, the most significant of which are the sales tax on services (collected under each province’s own sales tax on services statute by the provincial Revenue Authority) and property tax, collected by the provincial excise and taxation department, or in the case of Islamabad, by the CDA. Property tax is based on the annual value of properties in areas designated as Rating Areas by the provincial government, with higher rates for rented properties compared to self-occupied ones. No special concessions or exemptions presently exist for green buildings or energy efficient buildings, though reduction / concessionary incentives are granted for other purposes, such as early payment.¹⁰³

⁹⁸ The Pakistan Green Building Council, About. <<https://pakistan gbc.org/ourteam.php>>

⁹⁹ Data Collection Survey, JICA, 2-89.

¹⁰⁰ <https://banumukhtar.com/pakistan-green-building-council-gbc/>

¹⁰¹ <https://www.secp.gov.pk/document/green-bonds-guidelines/>

¹⁰² Customs Act, 1969. <<https://download1.fbr.gov.pk/Docs/20117161572837289customsAct.pdf>>

¹⁰³ Data Collection Survey, JICA, 2-93

56. As the chief regulator of the banking sector, the State Bank of Pakistan can play a massive role in the availability of finance through banks for the purposes of developing green buildings and energy efficiency projects. However, there is a general malaise of low credit availability in Pakistan driven by a number of factors, including but not limited to a risk averse banking sector, high interest rates, onerous security requirements, inefficient mechanisms for recovery in cases of default and other similar factors. While the State Bank of Pakistan has tried as recently as 2021 to improve access to credit to the construction industry generally for the purposes of housing development,¹⁰⁴ these efforts have not yielded much success in terms of improving access to housing finance. No measures of this nature have expressly incorporated energy efficiency or green buildings as a priority.
57. Policy interventions such as the Green Banking Guidelines issued by the State Bank of Pakistan to banks have attempted to increase the accessibility and adoption of green finance and green banking, but these have also had a limited impact.¹⁰⁵ Through the Green Banking Guidelines, the State Bank has sought to do a number of things, including encouraging banks to incorporate environmental and social risk factors into their lending decisions, promoting the adoption of best practices in risk management to mitigate potential negative environmental and social impacts associated with financing activities, promoting financing for environmentally sustainable projects, such as renewable energy, energy efficiency, and other green initiatives and providing incentives for banks to offer favorable terms for loans and financing related to environmentally friendly projects, and encouraging banks to build internal capacities to assess and manage environmental risks. However, these guidelines appear to have a very limited impact in the adoption of green banking and green finance nationally.
58. The SECP has also just recently introduced guidelines for the issuance of green bonds/sukuks by public and private,¹⁰⁶ which expressly recognizes green buildings¹⁰⁷ as a legitimate subject of the use of proceeds from raising green bonds. As the guidelines are brand new as of this Report, no green bonds /sukuks have so far been issued.

III. Analysis of Gaps and Failures

59. Needless to say, the legal infrastructure undergirding the push for energy efficient and green buildings is not optimally geared to achieve that purpose.
60. Pakistan's chief problem in this regard is fundamental in nature: the degree to which building control is successfully administered varies widely, and the mechanics for it

¹⁰⁴ See, for example, the SBP's Guidelines for financing of housing units in under-construction Projects <<https://www.sbp.org.pk/sme/d/circulars/2021/C10.htm>>;

¹⁰⁵ <https://www.sbp.org.pk/sme/d/circulars/2017/C8-Annex.pdf>

¹⁰⁶ <https://www.secp.gov.pk/document/green-bonds-guidelines/?wpdmdl=42537&refresh=655b3e19318821700478489>

¹⁰⁷ SECP Guidelines - Issuance of Green Bonds/Sukuks, Section 5(x) – Criteria for use of proceeds “**Green Buildings** - which meet regional, national or internationally recognized standards or certifications such as LEED-USA, BREEAM-UK, Pakistan Green Building Council.”

do not, at present, present a strong likelihood that tying in additional requirements either for green building materials and methods will prompt a visible transformation.

61. There is at least one study that documents the relative weakness of building Bylaws enforcement by various building control authorities in Pakistan.¹⁰⁸ It suggests that between public building control authorities (such as the LDA and local government) and private building control authorities (housing societies such as the Model Town Cooperative Housing Society (“MCS”) in Lahore), the private authorities generally have stronger enforcement practices than the public ones, with better results in the public sphere by authorities such as the Cantonment Boards. It was found that 100% of house plans were approved by the MCS, while Lahore Cantonment Board also had significant control in its area and more than 85% plans were approved from the authority, while LDA had a mixed trend of approved and not-approved status due to weak enforcement. The local government administration had the weakest enforcement results, with 70% of house plans not being approved by the building control authority.
62. A number of reasons have been proffered to explain this. Fundamentally, it appears to be a resources problem, with the lack of monitoring machinery, and shortage of technical manpower at the municipal level. Local political influence has also been suggested as a hurdle in controlling building violations.¹⁰⁹ By contrast, it is suggested that private building control authorities have better enforcement practices because of the participation of private parties, whose direct participation in the building control authorities (through electoral processes) gives them a direct stake in administration and enforcement, and enables building owners to put pressure on authorities to take prompt action and enforce its own Bylaws in the interest of the common good.¹¹⁰
63. Presently, the only consistent mode of enforcement found in the building Bylaws and regulations of building control agencies is the requirement that an architect and/or the consultant engineer provide a certification of the compliance of the building plan with the stipulated building standards (whether this is the Building Code of Pakistan, or the various other foreign standards building control agencies find acceptable).¹¹¹ There is, to be clear, little to no follow up or inspection regime in place regarding the accuracy of this certification, nor any post-completion, or random audit mechanism to gauge compliance. This has partial ties to the problem of capacity at the building control authority level, but also exposes a procedural / regulatory defect in enforcement.
64. The problem of capacity and lack of effective enforcement, especially at the level of the development authorities such as LDA, CDA etc. has been repeatedly highlighted through prior work in this area. Development authorities are routinely found to not

¹⁰⁸ Dr. Muhammad Asim, Dr. Saima Gulzar & Rumana Khan Shirwani, “Study on Impediments and Success of Building Bylaws implementation in Lahore, Pakistan” *Journal of Research in Architecture and Planning*, Vol.22, No.1 (2017). <[https://jrap.neduet.edu.pk/arch-journal/JRAP_2017\(FirstIssue\)/04.pdf](https://jrap.neduet.edu.pk/arch-journal/JRAP_2017(FirstIssue)/04.pdf)>

¹⁰⁹ Ibid.

¹¹⁰ Ibid.

¹¹¹ See, for example, the LDA Building Regulations 2019, Reg. 2.2.3(b), 9.3(1), 10.3.1, 10.3.3(e).

possess the technical and skilled staff necessary to assess compliance with the requirements of energy efficiency codes and green building codes.

65. JICA, for example, underlined in 2016 that while the 2011 Provisions state that the review and approval of the plans and specification by respective sanctioning from the development authorities or municipalities shall be in accordance with the EP-2011, many of these authorities or municipal corporation lack of technical and skilled staff who can understand the existing policies, proposals and can play their role for the implementation. It found that while development authorities were present in every major city, their role regarding urban planning and development remains unsatisfactory except of a few which managed to achieve targets and planned new strategies to cope with urban planning and housing issues.¹¹²
66. In addition to capacity problems, JICA also highlighted that there was also an awareness problem among building control agencies, architects, engineers and consumers regarding energy related building standards such as the 2011 Energy Provisions.¹¹³ This is to be expected given the complete absence of any effective compliance and enforcement mechanism in respect of energy efficient building codes and protocols such as the 2011 Energy Provisions.¹¹⁴ Even where compliance can be assured, existing codes are already required to be updated regularly, (3 years standard), but such updates haven't been forthcoming in the past – though there is some renewed energy to do this owing to the establishment of NEECA. Still, despite the development of the national Energy Efficient Building Code in 2023 (12 years after the 2011 Energy Provisions, and 7 years after the NEECA Act was enacted), it should be borne in mind that outside of NEECA's own framework, neither the PEC nor the building control authorities are presently required to enforce it.
67. In an effort to resolve some of these concerns, NEECA is reported engaging with building authorities to improve incorporation and implementation of energy-efficiency related measures. NEECA has estimated that they hope to have engaged with and onboarded all the various building control authorities by the end of 2024.
68. Outside of the domain of building methodologies, green building codes also rely on the prescription of environmentally friendly and code-compliant construction materials. However, the rating system for manufactured goods in Pakistan is underdeveloped, and at present, domestically manufactured equipment and fixtures such as window frames come with no product specifications (such as airtightness or waterproofing).¹¹⁵ The lack of a market certificated products is also limiting factor when it comes to the adoption of energy efficient and green building practices.¹¹⁶

¹¹² Building energy efficiency policies and practices in Pakistan: A literature review - 5th International Conference on Energy, Environment & Sustainable Development (EESD) 2018

¹¹³ 2-104.

¹¹⁴ "A Comparative Analysis of Energy Provisions of Pakistan Building Code with Indian and USA Building Energy Codes" JAABE (2018)

¹¹⁵ Data Collection Survey, JICA, 2-103.

¹¹⁶ Ibid.

69. In this regard, while there is measurable (and commendable) progress in improving material and product certification, it has been commented that the technical aspects of programs are relatively straightforward, but the political, governance issues, and budgetary constraints can impede government-led initiatives. There has been emphasis placed on the importance of continuity and support from government leadership for national labelling success. Broader stakeholder engagement, including industry involvement, is crucial for adoption. Limited promotional budgets and the voluntary nature of the labelling had led to a loss of consumer awareness, but with NEECA's 2022 Regulations, there may be an opportunity for more momentum on the front of enforcement.
70. Finally, as discussed above, there are limited fiscal and tax incentives to adopt energy efficient and green building standards, which make the added cost of implementing green building practices even less attractive.
71. As discussed earlier, within the domestic legal framework, the NEECA Act provides for the awarding of energy efficiency certificates to buildings for energy conservation, which are envisioned as a tradeable commodity in the vein of the global carbon credits market – the idea being that if there were energy usage caps for types of buildings, then building owners who fail to remain under such caps could purchase energy efficiency certificates from building owners who use less energy. However, this mechanism currently exists only on paper, and NEECA has neither notified any standards for the assessment or award of energy saving certificates, nor purported to set any mandatory or voluntary energy consumption quotas for buildings that would create the need for parties to sell or purchase energy efficiency certificates.
72. On the topic of the carbon credit market that had its genesis in the Kyoto Protocol and the Glasgow COP26, Pakistan lags behind in effectively tapping into this mechanism.¹¹⁷ Energy efficient and green buildings could potentially serve as an additional avenue to capitalize on the global carbon credit trading market by enabling housing society developers, constructors or building owners to claim carbon credits for reductions in the emissions resulting from the erection of green buildings. A number of challenges stand in the way of this, most notably the absence of public knowledge of carbon credits, as well as the absence of local carbon credit markets or supporting legislative / regulatory infrastructure. Even so, there is a nascent market for certification agencies in Pakistan that can certify emissions reductions for registration and trading, and private businesses such as SGS offer such services.¹¹⁸
73. Taxation is a significant but underutilized policy tool in this regard. In other countries such as the United States, there are various tax credits and concessionary tax rates available to persons building owners as well as equipment and material manufacturers who implement green building and energy efficient measures. The Internal Revenue Service (IRS) of the U.S. Federal Government has provided the

¹¹⁷ Dr. Muhammad Khurshid, "Pakistan fails to earn dollars through carbon credits" Express Tribune. Online. 27 March 2023. < <https://tribune.com.pk/story/2408383/pakistan-fails-to-earn-dollars-through-carbon-credits>>

¹¹⁸ <https://www.sgs.com/en-pk/services/product-carbon-footprint>

guidance regarding tax credits to construct new energy-efficient homes available under the Energy Policy Act of 2005 through IRS Notice 2008-35, which provides guidance for credit for building energy-efficient homes other than manufactured homes, and IRS Notice 2008-36, which provides guidance for credit for building energy-efficient manufactured homes.¹¹⁹

74. Similarly, the Tax Relief and Job Creation Act of 2010 modifies and extends the energy-efficient appliance credit for certain dishwashers, clothes washers and refrigerators manufactured after December 31, 2010.¹²⁰ Similarly, the commercial building deduction appears in the new section 179D, which was enacted in the Energy Policy Act of 2005. The provision allows deductions for taxpayers who own, or are lessees of, a commercial building and install property as part of the commercial building's interior lighting systems, heating, cooling, ventilation and hot water systems, or building envelope.¹²¹
75. In Pakistan, tax incentives both at the Federal and provincial levels could potentially spur a revolution in the adoption of green building standards in constructing buildings if appropriate tax credits, tax breaks

IV. Recommendations for a Path Forward

76. To encourage the integration of smart and green city concepts, as well as energy efficiency provisions in urban planning and design, legal frameworks play a pivotal role in shaping and incentivizing sustainable practices. The Federal and provincial governments both need to implement an integrated strategy that both provides incentives and also mandates the maintenance of clearly defined thresholds / standards at the risk of penalty.
77. As discussed in detail above, Pakistan's federal form of government necessarily requires buy-in from the provinces in order for there to be any effective building control, since property, urban planning, development and ancillary matters remain largely within the legislative and administrative control of the provincial governments and legislatures, and then further down, in the hands of local development authorities created mostly under provincial statutes (except for Cantonments, DHAs and federal housing schemes or programs such as the Naya Pakistan Housing Project).
78. Thus both levels of government can look to enacting legislation that mandates or incentivizes the incorporation of energy-efficient technologies and green building standards in urban development projects. Zoning laws, for example, can be revised to prioritize the allocation of land for eco-friendly initiatives and set specific energy efficiency targets for new constructions.
79. Moreover, financial incentives such as tax breaks, grants, or low-interest loans can be introduced to motivate developers and businesses to invest in smart and green

¹¹⁹ Data Collection Survey, JICA, 3-47.

¹²⁰ Ibid.

¹²¹ Ibid.

technologies. These incentives can be tied to the attainment of specific sustainability goals, ensuring that the benefits of environmentally friendly practices are both economic and ecological. Additionally, stringent building codes and certification programs can be implemented, requiring adherence to energy efficiency standards for obtaining construction permits. By embedding such requirements in legal frameworks, governments create a regulatory environment that fosters innovation and motivates stakeholders to prioritize sustainability in urban development.

80. Furthermore, collaboration between public and private sectors can be encouraged through legal mechanisms, fostering partnerships that leverage resources and expertise to implement smart city solutions. The law can facilitate the creation of public-private partnerships (PPPs) that focus on the development and maintenance of green infrastructure, including energy-efficient buildings and smart grid systems. By doing so, the legal system becomes a catalyst for the widespread adoption of sustainable practices, promoting a holistic approach to urban development that addresses environmental concerns while also meeting the needs of a growing and technologically advancing population. These approaches are discussed below:

Improving the implementation of Green Building Standards

81. As noted previously, in Pakistan, the power of the state to regulate affairs is divided between the Federal and provincial governments. On a Federal level, the NEECA Act provides mechanisms for the enforcement of the provisions of the Act including compliance with energy consumption standards. The Act provisions for the appointment of inspectors, by the designated provincial agency, for the purposes of enforcement.¹²² The inspectors may enter into a premises to undertake inspection of any equipment for compliance with the energy consumption standards or other such matters as may be authorized. According to our information, no such inspectors have been appointed by any of the provincial agencies.
82. Furthermore, under the NEECA Act, there exists a provision which allows for NEECA to carry out energy audits of any building for the purposes of identifying energy conservation issues and making recommendations for corrective measures.¹²³ Through such audits, NEECA can not only play a facilitatory and educational role as regards to adoption of energy efficient and green building standards and practices but can also develop a formal legal mechanism for ongoing monitoring of certain larger scale projects to ensure compliance on an ongoing basis. Such a mechanism, for instance, could involve an initial inspection / audit at the pre-approval stage based on the submitted plans and drawings and then follow-up audits and inspections as construction proceeds.
83. If NEECA and through it, the provincial designated agencies such as PEECA, seek to improve enforcement on matters related to energy efficient, they must undertake serious efforts and make available adequate financial resources to build out its

¹²² See, Section 15 of the NEECA Act.

¹²³ See Section 7 (s) of the NEECA Act.

inspection and audit capacities. This is only possible if there is a collective appreciation on Federal and provincial government levels of the dire need for the adoption of energy efficient and green building provisions in Pakistan and a willingness to direct significant financial resources towards this issue. Such resources could be granted to NEECA, for instance, through the Energy Conversation Fund, a Fund which is envisioned under the Act, to be established by the Federal Government for the purposes of promoting efficient use of energy and for meeting out the expenses incurred in the implementation of the law.

84. The MoCC also has an important role to play *vis a vis*, devising, streamlining and coordinating implementation plans. As the Federal Government's primary ministry that deals with issues of climate change and environmental coordination, the MoCC can play a beneficial facilitatory role in the development and adoption of green building standards for Pakistan. Where support of the Federal Government is provided, both financial and political, the MoCC is well placed to gather all stakeholders, both at the provincial and federal levels, at one forum in order to devise national mechanisms for the adoption and enforcement of green standards as well as to resolve any ongoing concerns that arise as regards to the jurisdiction of a particular agency, authority, ministry or government to act in a particular area. The currently active coordination mechanism instigated by MoCC for NDC implementation, monitoring and reporting is a testament to how such an engagement is possible between the provincial and federal entities. Being the focal and decision-making entity on decarbonizing the economy and environmental sustainability, a green building certification system administered by MoCC and supported by NEECA is suggested. At federal level, the enforcement of the certification system can be handled by PEC. This certification system can be implemented by both public and private entities possessing research capacities and testing labs. Academic institutions can play a pivotal role in conducting green building materials testing.
85. On a provincial level, the focal agencies that must play their role are the provincial designated agencies. As discussed previously, the majority of local building development authorities have not yet adopted even the 2011 Energy Provisions, let alone any of the energy efficient codes or guidelines. The Provincial Designated Agencies must, therefore, as an initial and first step, undertake efforts to ensure that standards as regards efficiency efficient are formally adopted as part of the respective building regulations / standards in force in their provinces so that these may be formally enforced.
86. Notwithstanding, it should be remembered that the capacity, competency and commitment of local development authorities, such as the LDA, itself is under question and in such circumstances, it is unlikely that such bodies will consider the enforcement of energy efficient and green building provisions as a priority. In this respect, delegating this responsibility further, to the private housing schemes, which have demonstrated a greater capacity and willingness to enforce building code provisions and punish violations may be a solution worth exploring. Where such schemes do not exist, greater private participation in matters related to enforcement of energy efficient and green building standards could provide a solution. Such

participation could be in a number of forms, such as through a direct outsourcing of the enforcement of energy efficient and green building standards or through more tailored measures such as increasing the involvement and responsibility of architects working on a particular project, through amendments in bylaws providing for the professional ethics and standards of licensed architects and town-planners which add specific obligations upon architects and town planners to ensure that any building they design and construct conforms with the relevant energy efficiency and green building requirements applicable. While currently, there is only an obligation to “advise on the efficient use of energy in new and existing buildings.”¹²⁴, this could be expanded to include more specific obligations regarding design, choice of material etc.

87. As this report has attempted to make clear, given the nature of Pakistan’s governance structure without provincial and federal coordination, serious progress in the area of development and enforcement of energy efficient and green building standards will likely remain lacking.
88. A consultative inter-agency committee on building codes could potentially solve this problem – it could be a consultative caucus for provincial, federal and local stakeholders to interact and coordinate their respective efforts with regards to impletion of a uniform building code, based on green building principles, which contains the appropriate enforcement mechanisms as regards energy efficiency. The committee could have representation from NEECA, each provincial designated agency, all the building control authorities discussed earlier (LDA, CDA, the Cantonment Boards, the Naya Pakistan Housing Development Authority) and from the local government. Such a platform could be beneficial not only for purpose of coordination of efforts of the individual stakeholders but for the resolution of any issues as regards jurisdiction in a more streamled and timely fashion.

Regular Updates of the Relevant Building Codes

89. In addition to developing a stringent enforcement mechanism as regards energy efficient and green building standards, at international best practices inform us, it is equally important to regularly, at defined intervals, update the building standards and codes to account for changes in technology, building practices, availability of materials etc. While the Energy Conservation and Building Code, 2023 states that “*The code would be revised every 3 years, with the possibility of earlier updates if necessary to ensure its continued relevance and effectiveness*”,¹²⁵ in the past, it has been seen that regular revisions in the codes rarely occurs according to this timeline.
90. For instance, while both the Building Energy Code for Pakistan, 1990 and the Punjab Energy Conversation Building Code 2017 both provided for defined periods after which the codes would be reviewed and updated as required, neither code has seen

¹²⁴ Code of Professional Conduct, Architects Appointment, Part 2 – Other Services, 2.10. <
<https://pcatp.org.pk/document/PCATP%20Hand%20Book.pdf>>

¹²⁵ See Clause 1.4 of the Energy Conservation and Building Code, 2023.

any substantial amendment following its initial publication.¹²⁶ Given the rapid pace of technological change, it is therefore imperative that the obligations as regards to regularly reviewing the building codes and updating them as required is adhered to and the relevant stakeholders chalk out an implementation mechanisms through which such reviews and updates may be made, in accordance with the provided timelines and best practices.

Material and Energy Efficiency Standards & Certifications

91. For green buildings to be viable, the material that is used to construct them must be convenient to identify and source. There is already a wide enabling framework available for the government to implement material standards certifications.
92. While the NEECB has the power to establish organizations for the purposes of carrying out its functions under the NEECA Act,¹²⁷ given its already pre-existing expertise in the area, the PSQCA is probably best placed to take on the mantle of establishing quality control and certification standards for equipment and materials, with participation from the private sector in carrying on inspections through a fee based model in order to bring energy efficiency and green building certifications to market.¹²⁸
93. The NEECA Act also provides for a potential end-user certification system that potentially looks to create secondary market for energy conservation certificates that can be used to offset a consumer's non-energy-efficient practices¹²⁹ (much like the carbon credit system sought to be implemented by the Kyoto Protocol). While this provision is promising, it must be borne in mind that, looking across the field to Pakistan's small, shallow and weak secondary markets for securities (the PSX and the PMEX), the possibility of a robust secondary market in energy efficiency credits and tradable energy certificates is best left as a second step once there is more widespread understanding and acceptance of green buildings and energy efficient buildings, a well-established enforcement mechanism, and a larger market for green building related products.

Fiscal and Tax Incentives.

94. Fiscal incentives can also have a substantial impact on the implementation and realization of an effective green building regime, combining benefits stemming from both the Federal and provincial tax regimes to create a cascade of benefits for all the stakeholders involved in the building process.
95. Financing plays a crucial role in promoting green buildings by incentivizing sustainable practices, encouraging energy efficiency, and addressing environmental

¹²⁶ A three-year minimum and a five year maximum period is provided under the Punjab Code, 2017 while a three year period is provided under the Building Energy Code, 1990.

¹²⁷ NEECA Act 2016, Section 5.

¹²⁸ NEECA Act 2016, Section 7(e).

¹²⁹ See, NEECA Act 2016, Section 11.

concerns. Green building financing can come from various sources, including government initiatives, private investors, and financial institutions. Countries like

96. In some African countries, microfinance institutions provide loans to small-scale developers and homeowners to implement green building techniques.¹³⁰ These loans can be specifically targeted at improving energy efficiency and using sustainable materials. Brazil has implemented public-private partnerships to fund sustainable urban development projects, including green buildings.¹³¹ The collaboration between government entities and private investors helps mobilize resources and expertise.
97. Private companies or municipalities can enter into energy performance contracts where the financing is tied to achieving specific energy efficiency goals. The savings generated from improved energy performance can be used to repay the financing.
98. There are numerous other opportunities for the State Bank of Pakistan to intervene to assist in promoting green building financing. It can, for instance, work with financial institutions to enable them to offer financial products that reward green building practices. Lower interest rates or special coverage for green features can incentivize developers to invest in sustainable construction.
99. Green financing has also made significant headway in the past decade internationally. Sweden have issued green bonds to finance environmentally friendly projects, including green buildings.¹³² Investors purchase these bonds, and the funds are allocated to sustainable development projects.
100. The SECP has also just recently introduced guidelines for the issuance of green bonds/sukuks by public and private,¹³³ which expressly recognizes green buildings¹³⁴ as a legitimate subject of the use of proceeds from raising green bonds. These guidelines create the opportunity for businesses looking to improve their ESG metrics to use green building standards as a means to show their commitment to environmental sustainability, and to raise financing more easily specifically for this purpose. The Federal Government, the State Bank and the SECP can implement a range of further policy measures to promote the utilization of this mode of financing to encourage companies to implement green buildings, such as encouraging mutual funds and public funds to invest in these funds more actively.
101. As discussed earlier, the operationalization of Energy Efficiency certificates under the NEECA regime, which closely emulate Emissions Reduction Certificates

¹³⁰ <https://sparkassenstiftung-easternafrika.org/media/detail/role-of-microfinance-institutions-in-green-financing-1039>

¹³¹ Ibid.

¹³² <https://unfccc.int/climate-action/momentum-for-change/financing-for-climate-friendly/gothenburg-green-bonds>

¹³³ <https://www.secp.gov.pk/document/green-bonds-guidelines/?wpdmdl=42537&refresh=655b3e19318821700478489>

¹³⁴ SECP Guidelines - Issuance of Green Bonds/Sukuks, Section 5(x) – Criteria for use of proceeds “**Green Buildings** - which meet regional, national or internationally recognized standards or certifications such as LEED-USA, BREEAM-UK, Pakistan Green Building Council.”

(ERCs), is also a potentially useful tool in improving the demand for green buildings. ERCs have emerged as a powerful instrument in the realm of sustainable development, offering a tangible way to incentivize and promote green building practices. One of the key advantages of ERCs is their tradability. Building owners or developers can monetize the certificates by selling them in emissions trading markets. Buyers, often companies seeking to offset their own emissions or comply with environmental regulations, purchase these certificates as a way to invest in sustainability while meeting their carbon reduction goals.

102. The existence of a market for ERCs creates a financial incentive for housing society developers, investors and building owners to prioritize sustainable building practices. By attaching a tangible value to emissions reduction, ERCs encourage the adoption of energy-efficient technologies, renewable energy sources, and other green building strategies. This, in turn, fosters a shift towards more sustainable and environmentally friendly construction practices.
103. Tax benefits also serve as potent tools for molding market behavior, and the Federal and provincial governments could offer several different kinds of tax concessions to incentivize building developers and owners to opt for green building frameworks.
104. The Federal Government, which has legislative and administrative authority over federal taxes (income, excise, customs and sales tax on goods), could consider amending the Income Tax Ordinance 2001 to introduce a tax credit, or other concessions or benefits, to persons deriving income from property if they possess a recognized green building certification or an energy efficiency certification. Similarly, builders, constructors, engineers, and architects can be given concessionary rates applicable to their income from business if they're able to show that a certain percentage of their projects in a given tax year are certified green or energy efficient.
105. At the end of material sourcing, the Sales Tax Act 1990 and the Customs Act 1969 could be amended to provide concessionary sales tax and customs duty rates for building materials and appliances that are duly certified by the PSQCA and NEECA as "green" or "energy efficient".
106. At the provincial level, the provincial tax on immovable property acts could be amended to provide concessionary rates or tax holidays to properties that are able to obtain a LEED or SEED certification. The sales tax on services acts could make reduced tax rates to applicable to the services of architects, builders and engineers who achieve a minimum number of LEED, SEED or other building certification standards as a percentage of their total projects in a given tax year.
107. In addition to incentives provided through the taxation regime, private lending institutions could be brought on board by the respective governments in an effort to make financing available for the retrofitting of old buildings with new, energy efficient and green standard materials and technology. The markup rates for finance availed under such schemes could be subsidized by the governments directly or the

governments could agree to act the surety for the loans granted under such schemes, in return for the financial institution charging a lower or sustained rate of interest.

108. Both models have been used in the past by both the provincial and Federal governments to increase access to finance for targeted segments of society. Such schemes would be helpful in not only providing property developers and builders with the needed additional capital to undertake energy efficient measures at their buildings but will also open up an avenue where through retrofitting, the long-term costs associated with operating an older building are reduced, providing a direct financial incentive to the building owner who has undertaken the changes. The adoption of solar technology in Pakistan is a testament to the success of such a model where once the long-term financial value for the consumer becomes apparent, the adoption rates see a significant uptick as a *snowball effect* begins to occur.¹³⁵

¹³⁵ The "snowball effect" in the context of technology adoption refers to a phenomenon where the adoption or use of a particular technology or innovation grows exponentially over time, often building momentum as more people or organizations begin to use it.

Table I

Name	Governing Legislation	Power to administer & legislate	Notable Rules, Regulation, Bylaws or Codes Administered
<i>Building Control</i>			
CDA	The Capital Development Authority Ordinance, 1960 ¹³⁶	Federal	Islamabad Residential Sectors Zoning (Building Control) Regulations, 2020 ¹³⁷
LDA	The Lahore Development Authority Act, 1975 ¹³⁸	Provincial (Punjab)	Lahore Development Authority Building and Zoning Regulations 2019 (amended up till 2020) ¹³⁹
Cantonment Board Clifton, Karachi	The Cantonments Act, 1924 ¹⁴⁰	Federal	The Cantonment Board Clifton Building By-Laws, 2007 ¹⁴¹
SBCA	Sindh Building Control Ordinance, 1979 ¹⁴²	Provincial (Sindh)	The Karachi Building & Town Planning Regulations, 2002
DHA Islamabad / Rawalpindi	Defence Housing Authority Rawalpindi Act, 2013 ¹⁴³	Federal	DHA Islamabad/ Rawalpindi By Laws and Regulations Revised 2022 ¹⁴⁴
DHA Lahore	Defence Housing Authority Lahore Order, 2002 ¹⁴⁵	Federal	DHA Construction & Development Regulations 2014 ¹⁴⁶
Naya Pakistan Housing and Development Authority	Naya Pakistan Housing and Development Authority, 2020 ¹⁴⁷	Federal	Standardization of Building Codes Standards and Specifications for Low-Cost (Affordable) Units - 2021 ¹⁴⁸
<i>Building Codes and Energy Efficiency Codes</i>			
PEC	Pakistan Engineering Council Act 1976 ¹⁴⁹	Federal	<ul style="list-style-type: none"> • Building Code of Pakistan, 2021 • PEC (Conduct & Consulting) By-Laws 1986 • Building Code of Pakistan – Energy Provisions 2011

¹³⁶ <https://www.cda.gov.pk/documents/docs/cda-ordinance-1960.pdf>

¹³⁷ <https://www.cda.gov.pk/documents/docs/buildingRegulations2020.pdf>

¹³⁸ <https://punjablaws.gov.pk/laws/308.html>

¹³⁹ https://lda.gov.pk/website/images/Amended_Building_Regulations_2019_with_amendment_approved_till_28_01_2020.pdf

¹⁴⁰ <https://lcb.gov.pk/assets/media/cantonments-act-1924.pdf>

¹⁴¹ <https://cbc.gov.pk/assets/media/cbc-building-By-laws-2007-final.pdf>

¹⁴² <http://www.sindhlaws.gov.pk/setup/publications/PUB-22-000006.pdf>

¹⁴³ <https://pakistancode.gov.pk/english/UY2Fqajw1-apaUY2Fqa-apaUY2Fqbc%3D-sg-jjjjjjjjjjjj>

¹⁴⁴ <https://serv4.dhai-r.com.pk/storage/app/media/DHAI%26R%20By%20Laws%20-%202022.pdf>

¹⁴⁵ <https://nasirlawsite.com/laws/dhalo.htm>

¹⁴⁶ <https://dhalahore.org/wp-content/uploads/2021/06/DHA-Construction-Regulaiton-2014-Updated.pdf>

¹⁴⁷ <https://pakistancode.gov.pk/english/UY2Fqajw1-apaUY2Fqa-apaUY2NpZ5s%3D-sg-jjjjjjjjjjjj>

¹⁴⁸ [https://naphda.gov.pk/naphda.gov.pk/docs/Standardization%20of%20Building%20Codes,%20Standards%20and%20Specifications%20for%20Low-Cost%20\(Affordable\)%20Units%20-%202020May%2021.pdf](https://naphda.gov.pk/naphda.gov.pk/docs/Standardization%20of%20Building%20Codes,%20Standards%20and%20Specifications%20for%20Low-Cost%20(Affordable)%20Units%20-%202020May%2021.pdf)

¹⁴⁹ <https://www.pec.org.pk/wp-content/uploads/2021/03/PEC-Act-1976.pdf>

NEECA / NEECB	National Energy Efficiency and Conservation Act 2016	Federal	<ul style="list-style-type: none"> National Energy Efficiency Authority (Pakistan Energy Labels) Regulations, 2022 National Energy Efficiency and Conservation Policy, 2023 Energy Conservation Building Code 2023
Sindh Energy Efficiency and Conservation Agency		Sindh	N/A
Pakhtunkhwa Energy Development Organization		KPK	N/A
Punjab Energy Efficiency and Conservation Agency		Punjab	<ul style="list-style-type: none"> Draft Punjab Energy Efficiency Code 2023
Baluchistan Energy Department		Balochistan	N/A
<i>National Certification Regime</i>			
Pakistan Standards and Quality Control Authority	Pakistan Standards and Quality Control Authority Act 1996	Federal	<ul style="list-style-type: none"> Various Pakistan Standards, including but not limited to Pakistan Standard for Comfort Fans and Regulators for Household and Similar Purposes – Methods for Measuring Performance
<i>Taxation</i>			
Federal Board of Revenue	<ul style="list-style-type: none"> Federal Board of Revenue Act, 2007 Income Tax Ordinance 2001 Sales Tax Act, 1990 Federal Excise Act, 2006 Customs Act, 1962 	Federal	
Punjab Revenue Authority	<ul style="list-style-type: none"> Punjab Revenue Authority Act 2012 Punjab Sales Tax on Services Act 2012 	Punjab	
Sindh Revenue Board	<ul style="list-style-type: none"> Sindh Revenue Board Act, 2010 	Sindh	

	<ul style="list-style-type: none"> • Sindh Sales Tax on Services Act, 2011 		
KPK Revenue Authority	<ul style="list-style-type: none"> • KPK Revenue Authority Act, 2022 • KPK Sales Tax on Services Act, 2022 	KPK	
Balochistan Revenue Authority	<ul style="list-style-type: none"> • Balochistan Revenue Authority Act, 2015 • Balochistan Sales Tax on Services Act 2015 	Balochistan	
<i>Finance</i>			
State Bank of Pakistan	<ul style="list-style-type: none"> • State Bank of Pakistan Act, 1956 	Federal	<ul style="list-style-type: none"> • Green Banking Guidelines
Securities and Exchange Commission of Pakistan	<ul style="list-style-type: none"> • Securities and Exchange Commission of Pakistan Act, 1997 • Companies Act, 2017 	Federal	<ul style="list-style-type: none"> • Guidelines on Green Bonds