Nuclear Liability and Environmental Damage under Bangladesh Atomic Law

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DOI: https://doi.org/10.47772/IJRISS.2026.101000450

Received: 23 October 2026; Accepted: 28 October 2026; Published: 04 November 2026

ABSTRACT

This article examines whether Bangladeshi law would compensate people, and the environment itself, for harm caused by a nuclear incident. The question became practical when the country's first reactor reached criticality in October 2026. Earlier commentary reported that Bangladesh had no clear nuclear liability rules. This article shows that the claim is mistaken: Chapter VII of the Bangladesh Atomic Energy Regulatory Act 2012 (sections 43 to 50) establishes operator liability without fault, compulsory financial security, a State guarantee, long limitation periods, exclusive domestic jurisdiction and a definition of nuclear damage that includes the cost of reinstating an impaired environment. Through a doctrinal reading of the authentic English text and the prevailing Bangla text, compared with the Vienna, Paris and Supplementary Compensation regimes and with the 2022 IAEA peer review of the regulator, the article identifies the weaknesses that remain. The liability amount is described in the Act as both a maximum and a minimum. The exception for a grave natural disaster of an exceptional character is undefined and leaves excepted events with no stated source of compensation. No body is designated to claim for damage to the environment itself. The liable operator at each stage of the project is not identified in any published regulation. The Act is silent on channelling and on recourse against suppliers, and an immunity clause in the Nuclear Power Plant Act 2015 sits uneasily beside the State guarantee. Bangladesh is also outside every international liability convention. These are design gaps rather than absences of law, and each can be corrected by regulation, amendment or treaty accession. The article argues that they should be corrected before commercial operation, because they would matter most in the events to which Bangladesh is most exposed.

Keywords: nuclear liability, environmental damage, nuclear law, Bangladesh, natural-disaster exception

INTRODUCTION

A nuclear liability regime does nothing while a reactor is under construction. Once fuel is loaded, it decides who must pay if radioactive material is released, how much is available, which harms count, who may claim and in which court. Those rules are part of a country's environmental law as much as its nuclear law, because a severe release would damage rivers, farmland and fisheries as well as people and property. This article examines Bangladesh's rules on nuclear liability from that perspective.

The question is no longer abstract. Bangladesh's first nuclear power unit, at Rooppur on the Padma River, received the licence for fuel loading and physical start-up on 16 April 2026, completed fuel loading on 12 May and reached first criticality on 11 October 2026 (Prothom Alo, 2026; World Nuclear News, 2026a, 2026b, 2026c; bdnews24.com, 2026). The plant is the occasion for the inquiry, not its subject. Its features matter here only because they show how the law would operate in practice: a single foreign vendor, a State-owned operator, financing largely through a foreign State credit, and a densely populated, flood-prone setting.

The existing literature gives an incomplete answer. Karim et al. (2018), in the most comprehensive earlier review of Bangladesh's nuclear legal framework, reported that the Government had not enacted any law or provision

setting out clear liability rules, and Sattar et al. (2020) observed that the Nuclear Power Plant Act 2015 contains no provision on the consequences of a nuclear disaster. The second statement is correct about that Act, but the first overlooks Chapter VII of the Bangladesh Atomic Energy Regulatory Act 2012 (the BAER Act), headed "Nuclear Liability and Coverage". The IAEA's 2022 peer review recorded that the BAER Act deals with nuclear liability and coverage, and the advance material supplied to the review team stated that most obligations of the Vienna Convention and its 1997 Protocol had been addressed in it (International Atomic Energy Agency [IAEA], 2022, sections 1.3 and 2.1).

Other work on the subject is broader or asks different questions. Karim et al. (2018) examine the legal and regulatory framework as a whole. Sarker (2021) gives a short overview of nuclear law in Bangladesh in which liability is one of four topics. A newspaper commentary of 2014 urged legislation on supplier liability along the lines of India's Act (Matin, 2014).

This article asks a different question from the earlier literature. It does not ask whether Bangladesh has nuclear liability rules. It asks whether the rules it has are adequate and operable, with particular attention to environmental damage. The argument is that Chapter VII is more complete than earlier commentary assumed, and in some respects more generous than the international conventions, but that it contains a small number of design gaps that would matter most in exactly the events to which Bangladesh is most exposed.

The article contributes to this literature in four ways. First, it reads Chapter VII provision by provision in both the English and the Bangla text, and it identifies a textual inconsistency between ss 45 and 48(3) and a word in s 43(1) of the Bangla text that has no English counterpart. Second, it takes environmental damage as its main question: who may claim for harm to the environment itself, who assesses it, how it ranks against personal injury, and what the s 45 amount would leave for it. Third, it tests the natural-disaster exception against the design-basis data that the regulator has published for Rooppur, instead of discussing the exception in the abstract. Fourth, it groups its recommendations by the legal instrument each needs, because amendment of an Act, regulation under it and accession to a treaty differ in speed, cost and in who controls them. The author located no earlier study that takes these steps for Chapter VII.

Sources and method

The analysis is doctrinal and comparative. Its principal source is the authentic English text of the BAER Act, published in the Bangladesh Gazette on 17 September 2017 under S.R.O. No. 277-Law/2017. Because the Bangla text prevails in case of conflict (s 70(2)), the Bangla text of the liability provisions (ss 43, 45, 46, 48 and 50) was also read. It agrees with the English text on the liability amount, financial security and the exceptions, but s 43(1) contains one word with no English counterpart, discussed under "Channelling" below. The Nuclear Power Plant Act 2015 (the NPP Act) is available only in Bangla, and quotations from it are the author's translation.

The international benchmarks are the 1963 Vienna Convention on Civil Liability for Nuclear Damage, its 1997 Protocol, the Paris and Brussels regime and the 1997 Convention on Supplementary Compensation for Nuclear Damage (CSC), read with Bellamy's (2019) analysis of liability in countries building their first plants. The Bangladeshi position is tested against the 2022 report of the IAEA Integrated Regulatory Review Service (IRRS) mission (IAEA, 2022) and the regulator's national report to the Convention on Nuclear Safety (Bangladesh Atomic Energy Regulatory Authority [BAERA], 2020).

Several documents that bear on liability are not public or could not be found: the licences issued for Rooppur, the intergovernmental agreements and the general contract with the vendor, the terms of the financial security approved under s 46, and any regulations made under ss 45 or 69. The article does not assess them, and where a conclusion depends on their absence it says so. Gaps are classified using a simple typology: absent law (A), weak or unclear law (W), an implementation deficiency (I) and a matter that cannot be verified from public documents (U). Each calls for a different remedy: a new provision, a clearer provision, better application or disclosure. Statements about the position after the 2022 IAEA review rest on press and industry reports and are dated accordingly. Information is current to 14 October 2026.

The broader environmental provisions of Bangladesh's atomic energy laws, including licensing, environmental

assessment, waste, decommissioning and regulatory independence, are examined in a companion article. This article concentrates on liability and compensation.

Four terms are used in a fixed sense throughout. “The Authority” is the Bangladesh Atomic Energy Regulatory Authority established under the BAER Act, abbreviated BAERA where it appears as the author of a report. “Operator” has the meaning given in s 2(40). “The State guarantee” is the Government’s obligation under s 46(3) to ensure payment of claims to the extent that the operator’s security is inadequate. “The s 45 amount” is the sum fixed by s 45, whatever its legal nature, which is the question taken up under “The liability amount” below.

THE INTERNATIONAL LAW OF NUCLEAR LIABILITY

Four main instruments govern liability for nuclear damage internationally. The Vienna Convention of 21 May 1963, adopted under the auspices of the IAEA, entered into force on 12 November 1977. The Paris Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960, prepared under the OECD, entered into force on 1 April 1968 (Ha-Vinh, 1985). The Brussels Supplementary Convention of 1963 adds public funds to the Paris regime. A Protocol amending the Vienna Convention was adopted in 1997 and entered into force in 2003, and the CSC, also adopted in 1997, entered into force in April 2015 (Bellamy, 2019; IAEA, n.d.).

Compensation levels began low and have been raised over time. The Paris Convention originally set an operator’s liability at between 5 and 15 million Special Drawing Rights (SDR), and the Brussels Supplementary Convention raised the total available to 300 million SDR, of which the installation State supplies up to 175 million and the other parties collectively the balance (Bellamy, 2019). The 1997 Vienna Protocol and the CSC raised standards again. They widened the definition of nuclear damage, previously limited to injury to persons and damage to property, to include the cost of preventive measures and of reinstating the environment; they allowed compensation for victims in non-party States; and they made 300 million SDR the minimum amount a party must make available under national law (Bellamy, 2019; Singh & Singha, 2016). The CSC added a second tier, an international fund to which parties contribute according to installed nuclear capacity and a formula tied to the United Nations scale of assessment (Bellamy, 2019). It is open to any State, whether or not it is party to the Vienna or Paris Conventions, provided its national law conforms to the CSC Annex and, if it has a nuclear installation, it is party to the Convention on Nuclear Safety (Bellamy, 2019).

Bellamy (2019) identifies seven principles shared by the Paris and Vienna systems. Liability is channelled exclusively to the operator. It is absolute, subject only to narrow exceptions. It is limited in amount and in time. It must be backed by insurance or other financial security. Victims are treated without discrimination on grounds of nationality or residence. Jurisdiction lies exclusively with the courts of the State in which the incident occurs. These principles are the benchmark used below.

The international regime also matters commercially. Since 2011 the major reactor exporters, including the Russian exporter Rusatom Overseas, have subscribed to voluntary principles under which they satisfy themselves, before contracting, that the purchasing State has a compensation regime consistent with the basic principles of the conventions and belongs to an international liability regime (Bellamy, 2019). The vendor’s interest lies above all in channelling, which protects suppliers from claims by victims.

BANGLADESH’S TREATY POSITION AND THE SETTING IN WHICH THE LAW WOULD OPERATE

Bangladesh has accepted the main international instruments on nuclear safety and emergencies but none on liability. The IAEA’s country factsheet records that Bangladesh is party to the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (both in force for Bangladesh since February 1988), the Convention on Nuclear Safety (since October 1996), the Convention on the Physical Protection of Nuclear Material (since 2005) and its 2005 Amendment (since 2017), and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, to which it acceded on 17 September 2025, with entry into force on 16 December 2025. The same factsheet lists Bangladesh as a non-party to both the Vienna Convention and the CSC (IAEA Office of Legal Affairs, n.d.). Bellamy (2019) likewise records Bangladesh as a new entrant with no

applicable liability convention. Compensation after a release would therefore rest entirely on the Bangladeshi statute and the Bangladeshi courts.

The first plant to which the statute applies shows how it would operate in practice. The plant consists of two VVER-1200 pressurised water reactors of about 1,200 MWe each, built on a turnkey basis by JSC Atomstroyexport, part of Rosatom, under a general contract of 25 December 2015. BAERA reports a contract price of US$12.65 billion, of which US$11.38 billion is covered by a Russian State credit (BAERA, 2020, section 9). The Bangladesh Atomic Energy Commission (BAEC) is the owner organisation, and Nuclear Power Plant Company Bangladesh Limited (NPCBL), formed under the NPP Act, is the operating organisation (NPP Act ss 4(2)–(3)). Russia supplies the fuel for the plant's life and takes back spent fuel under a separate agreement (BAERA, 2020, section 9). The plant stands on the Padma River in a country exposed to floods, cyclones and earthquakes. Figure 1 shows the institutional arrangement.

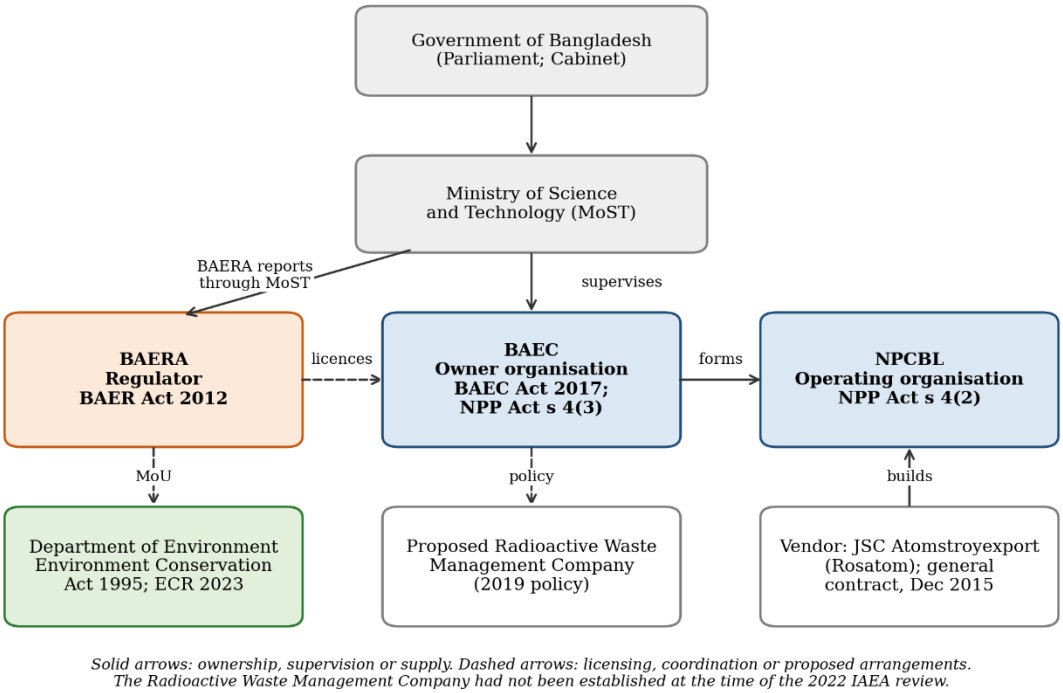

Figure 1. Institutions and instruments for nuclear energy in Bangladesh. Source: compiled by the author from the BAER Act 2012, the NPP Act 2015, the BAEC Act 2017 and IAEA (2022).

Two consequences follow. First, because the operator is State-owned and the plant is financed by a State credit, the practical bearer of a large loss would be the public, whatever the formal allocation of liability. Second, because the site is exposed to severe natural hazards, the natural-disaster exception in the liability chapter has unusual practical importance.

CHAPTER VII OF THE BAER ACT: STRUCTURE AND BENCHMARKS

Chapter VII contains ss 43 to 50. Five elements can be distinguished in a civil liability regime: operator liability backed by financial security; a system of compensation; limitation of liability; a defined role for the Government; and access to justice. Chapter VII addresses each. Operator liability is in s 43 and financial security in s 46(1)–(2). The compensation system is in s 48, which leaves the nature, form, extent and distribution of compensation to regulations and gives priority to personal injury. Limitation of amount and time is in ss 45 and 47. The Government's role is in s 46(3), and access to justice is in s 49 (jurisdiction) and s 60 (civil remedy). Table 1 compares the chapter with the international benchmarks.

Table 1. Chapter VII of the BAER Act compared with international benchmarks

Feature	BAER Act 2012	Benchmark (Bellamy, 2019; treaty texts)	Assessment
Basis of liability	Operator liable on proof that damage was caused by a nuclear incident at its installation (s 43(1)); no proof of fault required	Absolute liability subject to narrow exceptions	Consistent; exceptions differ (see "The natural-disaster exception")
Channelling	No express clause making the operator the only person liable; s 50(3) preserves individual liability for intentional acts	Liability channelled exclusively to the operator	Unclear (see "Channelling")
Amount	Taka equivalent of 300 million SDR or another amount notified by the Government; operator's liability per incident to be set by regulations (s 45); called a "minimum" in s 48(3)	At least 300 million SDR under the revised Vienna Convention and the CSC	Meets the treaty floor; ceiling or floor unclear (W; see "The liability amount")
Financial security	Insurance or other security, terms approved by the Authority; Government pays to the extent security is inadequate, up to the s 45 amount (s 46); direct action against insurer (s 49(2))	Insurance or other security, with public funds for any shortfall up to the limit	Consistent; Rooppur terms not public (U)
Time limits	50 years for death and personal injury, 25 years for other damage, 10 years from knowledge (s 47(1)–(2)); amendment for aggravation (s 47(3))	30 years for personal injury under the revised conventions; 10 years under the CSC Annex	More generous than the benchmarks
Damage covered	Seven heads, including reinstatement of the environment, loss of income from environmental use and preventive measures (s 2(23))	Same heads in the CSC definition	Closely follows the CSC
Exceptions	Grave natural disaster of an exceptional character; armed conflict, hostilities, civil war or insurrection; victim's gross negligence or intent (s 50)	Natural-disaster exception removed by the 1997 Vienna Protocol; retained by the CSC Annex unless the State provides otherwise	Retained, undefined, no State responsibility (W; see "The natural-disaster exception")
Jurisdiction	Civil courts of Bangladesh for incidents in its territory or exclusive economic zone (s 49)	Exclusive jurisdiction of the installation State's courts	Consistent; no treaty basis for recognition abroad (W)
Priority of claims	Personal-injury claims paid first if the s 45 amount is insufficient (s 48(2))	Not prescribed in the same form	Environmental claims rank after personal injury
Recourse against suppliers	Not addressed	Permitted only by written contract or for intentional acts under the CSC Annex	Silent (see "Recourse against suppliers")

Source: Author's analysis of the BAER Act 2012; Bellamy (2019); Vienna Convention 1963; CSC Annex. Gap types: W = weak or unclear law; U = cannot be verified from public documents (see "Sources and method").

The comparison supports two general conclusions. The architecture is recognisably that of the international conventions, which is consistent with the IAEA's observation that the Act was drafted largely on the model of

the IAEA handbooks on nuclear law (IAEA, 2022, section 1.3). In three respects, the scope of damage, the limitation periods and direct action against insurers, the Act is as protective as the conventions or more so. The weaknesses lie in specific provisions, examined in the sections that follow.

ENVIRONMENTAL DAMAGE AS NUCLEAR DAMAGE

The environmental heads of damage

Section 2(23) defines nuclear damage in seven limbs, two of them directly environmental. Limb (d) covers the costs of measures to reinstate an impaired environment, unless the impairment is insignificant, where the measures are actually taken or to be taken. Limb (e) covers loss of income deriving from an economic interest in any use or enjoyment of the environment, incurred as a result of significant impairment of that environment. Limb (f) covers the costs of reasonable preventive measures, subject to approval by the competent authority required by the law of the State where the measures are taken. The definition closely follows the CSC (Bellamy, 2019).

Inclusion of environmental reinstatement is a genuine strength. Older conventions covered only injury to persons and damage to property, so the Bangladeshi statute is ahead of them, and it gives fishers, farmers and others whose livelihoods depend on the Padma floodplain a statutory basis for claims for lost income. The difficulty of insuring such losses should not be underestimated. When Canada revised its nuclear liability legislation in 2007, it proposed to include measures to repair or mitigate environmental damage ordered under environmental legislation, and nuclear insurance pools expressed reservations about whether such damage was fully insurable (Berger, 2008). That experience is a reason for Bangladesh to examine the terms of the security approved under s 46, not a reason to narrow the definition.

Who claims for the environment?

The Act does not identify who may claim for damage to the environment itself. Limb (c) refers to economic loss incurred "by a person entitled to claim", but limb (d) does not say which person or body may claim reinstatement costs. Where the damage affects a public water body, a wetland or a protected area, the person who bears the reinstatement cost may well be the State. No body, whether the Department of Environment or another, is named as the competent authority to assess environmental damage and claim its cost. The gap is of type W. It could be filled by regulations under s 69(2)(28), which would also need to say how reinstatement measures are to be assessed and approved.

Reinstatement raises a wider institutional question than standing. Several functions are involved: ordering protective measures, assessing the damage, claiming its cost, assessing and distributing compensation, enforcing claims and paying where security fails. Table 2 sets out what Chapter VII and the related provisions say about each. The gap types are those defined under "Sources and method".

Table 2. Institutional responsibility for environmental damage and compensation under the BAER Act

Function	What the Act provides	Body named	Gap type
Ordering protective measures (evacuation, removal)	The Authority may order the removal of people, animals and property from a contaminated area, and the District Magistrate or Police Commissioner may enforce the order (s 41(3)–(4)); no compensation is payable by the Authority or officials (s 41(6))	The Authority; District Magistrate or Police Commissioner	–
Assessing environmental damage and approving reinstatement	Reinstatement costs are compensable where measures are taken or to be taken (s 2(23)(d)); preventive measures need approval by the competent authority required by the law of the State where they are taken (s 2(23)(f)); no procedure for assessment or approval	None	W

Claiming reinstatement costs	Limb (c) refers to a "person entitled to claim"; limb (d) does not say who may claim reinstatement costs	None	W
Assessing and distributing compensation	Nature, form, extent and distribution of compensation are left to regulations; personal injury is paid first (s 48)	Not specified; no regulations located	W, U
Enforcing claims	Civil courts have exclusive jurisdiction (s 49(1)); a claimant may sue the operator, the insurer or another security provider (s 49(2)); a civil action under s 60 lies only for loss caused by an offence under s 53, and offences are cognisable only on complaint by a person authorised by the Authority (s 57)	Civil courts; the Authority for prosecutions	W
Paying where security is inadequate	The Government must ensure payment up to the s 45 amount (s 46(3)); no compensation fund	The Government	W
Approving and disclosing financial security	Terms are submitted to and approved by the Authority (s 46(1)–(2)); the terms for Rooppur are not public	The Authority	U

Source: Author's analysis of the BAER Act 2012.

Bodies are named for protective orders, for enforcement through the courts and for approving financial security, but none of those functions concerns environmental damage itself. No body is charged with assessing harm to rivers, farmland or fisheries, with approving reinstatement measures or with claiming their cost. The Department of Environment, whose Director General issues environmental clearance under the Environment Conservation Act 1995 (Department of Environment, 2010), is the natural choice to assess damage, and the Authority is the alternative. Either could be designated by regulation under s 69(2)(28). The choice should be made before operation begins, because people whose livelihoods depend on the floodplain would otherwise hold a right to compensation with no one assigned to put it into effect.

Priority of claims

If the amount available under s 45 is exhausted, claims for loss of life and personal injury are paid first, and claims for other loss, including environmental heads, are paid after them (s 48(2)). Priority for human life and health is defensible. Its consequence, though, is that in a large release, where personal-injury claims could absorb most or all of the available amount, the environmental heads of damage that make the Act progressive on paper might receive little in practice. The adequacy of the amount, examined next, is therefore also an environmental question.

THE LIABILITY AMOUNT: CEILING, FLOOR OR BOTH?

The s 45 amount and the State guarantee

Section 45 sets the maximum liability for each nuclear incident at the taka equivalent of 300 million SDR, or another amount notified by the Government, and provides that the operator's liability for each incident is to be set by regulations. Under s 46(3), the Government must ensure payment of claims charged against the operator to the extent that the operator's insurance or other security is inadequate, but never beyond the s 45 amount. At the IMF rate of US$1.35326 per SDR on 9 October 2026, 300 million SDR is about US$406 million (International Monetary Fund, 2026). By comparison, the reported contract price of the plant is US$12.65 billion (BAERA, 2020, section 9).

The figure of 300 million SDR matches the treaty minimum and the limit in India's Civil Liability for Nuclear Damage Act 2010 (Bellamy, 2019). Choosing the minimum is defensible for a first plant. Bellamy (2019) makes the broader point, however, that no liability regime is designed to provide full compensation after an accident on the scale of Fukushima, that the installation State remains the insurer of last resort, and that this can create a compensation vacuum in a developing nuclear country such as Bangladesh. The Act's power to raise the amount

by notification (s 45) is the obvious tool once the operating risk is better understood.

An inconsistency in the text

Two features of the Act complicate the description of s 45 as a cap. First, under s 48(3), interest and costs awarded by the civil court are exclusive of the "minimum liability amounts specified in section 45", so interest and costs are payable on top of the s 45 figure. Second, s 48(3) calls the s 45 figure a minimum, whereas s 45 itself and s 48(2) call it the maximum. The Bangla text of s 48(3) uses a word (*anun*) meaning "not less than", so the inconsistency is not a translation error.

The structure of s 45 may explain it. The section fixes both an overall maximum and an operator's liability for each incident, the latter to be set by regulations, and the "minimum" in s 48(3) may refer to the level of the operator's own cover. The text does not say so. Until regulations under s 45 are made, it cannot be stated with confidence whether the figure operates as a ceiling on compensation, as a floor for the operator's cover, or as both. What the text does settle is that the State guarantee is limited to the s 45 amount (s 46(3)). The point is of type W. Regulations under s 45 can show how the figure operates, but only an amendment can remove the inconsistency in the text.

What matters in practice depends on which reading is correct. Table 3 sets out three readings and what each means for people injured, for claimants for environmental damage and for the State guarantee. The readings are the author's own. No regulation under s 45 and no judicial decision settling the point was located.

Table 3. Three readings of the s 45 amount and their consequences

Reading	Personal injury and other claims	Environmental claims	State guarantee
A. Ceiling: the s 45 amount is the most that can be paid for one incident (ss 45, 48(2))	Injury claims are paid first; total compensation for the incident stops at about US$406 million; interest and costs are payable on top (s 48(3))	Paid only from what injury claims leave; in a large release, little or nothing	Covers any shortfall in the operator's security, up to the s 45 amount
B. Floor: the s 45 amount is a minimum, as s 48(3) says	Claimants could argue that the operator remains liable above the s 45 amount; recovery would depend on the assets of the liable operator, which no published regulation identifies	Same position, ranked after personal injury under s 48(2)	Still limited to the s 45 amount (s 46(3)); nothing above it
C. Two figures: s 45 fixes an overall maximum and a separate liability per incident for the operator is set by regulation, to which the "minimum" in s 48(3) refers	What the operator must pay depends on regulations not yet located; the overall maximum remains the s 45 amount	Same, ranked after personal injury	Limited to the s 45 amount

Source: Author's analysis of ss 45, 46(3) and 48 of the BAER Act 2012. The US dollar figure is calculated under "The s 45 amount and the State guarantee".

Under every reading, three things hold. Interest and costs are payable on top of the s 45 amount (s 48(3)), personal injury is paid first (s 48(2)), and the State guarantee stops at the s 45 amount (s 46(3)). What differs is whether a claimant can look beyond that amount at all, and against whom. For environmental claims the difference is large, because they are paid second and are therefore the claims that the limit would cut off first. A court asked to decide the point before regulations exist would have to choose between the readings, with no guidance in the Act on what to award above the s 45 amount.

No dedicated fund

The Act creates no compensation fund. The only public element is the State guarantee, limited to the s 45 amount. Other countries have used different mechanisms. In Berger's (2008) account, the United States required each operator to contribute up to US$100 million per reactor unit, in instalments of US$15 million a year, to a collective pool, while Germany met financial cover of €2.5 billion through insurance for the first €255.6 million and a pooling agreement among the parent companies of its plants for the remainder, with victims' claims ranking before the companies' rights of recourse. These figures are those given in that account and have not been updated. Under the CSC, a second tier of internationally contributed funds becomes available once the national amount is exhausted (Bellamy, 2019). Bangladesh is outside that mechanism. A fund financed by a levy on the operator during operation is the most practical national alternative, and it would have the further advantage of building resources over the plant's life rather than relying on the budget after an incident.

THE NATURAL-DISASTER EXCEPTION

The text and the treaties

Under s 50(1), the operator is not liable for damage directly caused by a grave natural disaster of an exceptional character, or by armed conflict, hostilities, civil war or insurrection. The phrase "exceptional character" is not defined in the Act or in any regulation located for this article.

The wording follows the 1963 Vienna Convention. Article IV(3)(a) excludes liability for damage caused by a nuclear incident directly due to an act of armed conflict, hostilities, civil war or insurrection. Article IV(3)(b) provides that, except in so far as the law of the installation State may provide to the contrary, the operator shall not be liable for damage caused by a nuclear incident directly due to a grave natural disaster of an exceptional character (Vienna Convention, 1963, art. IV(3)). The Annex to the CSC contains the same exception with the same proviso (CSC, 1997, Annex, art. 3(5)(b)). The 1997 Protocol to the Vienna Convention removed the natural-disaster exception altogether (Bellamy, 2019; Demougin et al., 2024). The Bangladeshi exception is therefore no broader than the instruments that retain it, but it is broader than the standard set by the 1997 Protocol.

International practice and scholarship are divided on whether the exception should exist. Demougin, Nieto-Cerezo and Wenzelburger (2024) argue that removing it can be counterproductive where damage may exceed the liability ceiling, because it aggravates moral hazard, and that safety is better served by defining the design basis carefully. The question is contested, and Bangladesh's choice to retain the exception is not indefensible in itself. Three features nonetheless make it more consequential in Bangladesh than its text suggests.

Why the exception matters in Bangladesh

First, Bangladesh's exposure to floods, cyclones and earthquakes makes the category unusually likely to be invoked. BAERA reports that the Rooppur site soils have weak bearing capacity and a liquefaction depth of about 5.9 metres, improved by deep soil mixing to about 20 metres; that the design safe-shutdown earthquake is 0.33g; and that the design flood level, derived from a scenario combining simultaneous flood peaks, tidal effects in the Bay of Bengal, sea-level rise and failure of the Farakka barrage at an annual probability of 0.01 per cent, is 17.981 metres, against a site level of 19.00 metres (BAERA, 2020, section 15.3). The IAEA review team cited BAERA's handling of the soil stabilisation as good practice for an embarking country (IAEA, 2022, section 1.3). These design choices have a direct legal consequence. The wider the design basis, the narrower the space for an event to be "exceptional", but only if the law links the two. At present it does not.

Second, nothing in Chapter VII transfers residual responsibility to the State for excepted events. The State's obligation under s 46(3) attaches only to claims charged against the operator, and s 50 provides that in the excepted cases the operator is not liable. On the face of the text, a person harmed by an incident found to have been caused by an exceptional natural disaster may have no statutory claim against either the operator or the State. India took a different course. Its 2010 Act retains the exception but provides that the Central Government is liable where damage is directly caused by such events (Kaur, 2016). Whether constitutional remedies in Bangladesh would fill the gap is untested.

Third, Kaur (2016) criticises the identical phrase in India's Act because it leaves substantial discretion to the authorities in deciding what counts as exceptional. The same criticism applies in Bangladesh, where the absence of a definition would leave the question to litigation after the event, when evidence is hardest to assemble and the claimants are most vulnerable.

One difference from India favours victims. India's Act lists terrorism among the exceptions; Bangladesh's does not (compare Kaur, 2016). Damage caused by sabotage therefore remains within the operator's liability under the BAER Act. The Act also criminalises attacks on installations, and its definition of sabotage expressly includes acts that endanger the environment (ss 2(3), 53(5)).

Defining "exceptional character"

National law is free to deal with the point. The 1963 Vienna Convention applies the natural-disaster exception unless the law of the installation State provides otherwise (art. IV(3)(b)), and the CSC Annex repeats the proviso. A national definition that narrows the exception, or State responsibility for excepted events, would therefore depart from neither text.

There is also a technical basis. The IAEA's design safety requirements for nuclear power plants (SSR-2/1, Rev. 1) require that all foreseeable external hazards be identified and used to set the design basis of the plant (Requirement 17), and that design extension conditions be derived for accidents more severe than the design basis (Requirement 20) (IAEA, 2016). The design basis of a licensed plant is therefore a regulatory construct, set on the evidence of site hazard assessment and approved by the regulator. Rooppur's published values show what this means in practice. The design safe-shutdown earthquake is 0.33g, and the design flood level, derived for an annual probability of 0.01 per cent, is 17.981 metres against a site level of 19.00 metres, a margin of 1.019 metres (BAERA, 2020, section 15.3).

A statutory definition could therefore provide that an event is of exceptional character only if it exceeded the design-basis value approved in the licence for that type of hazard, and that the operator must show that it did. Three limits should be noted. First, design-basis values are set hazard by hazard and may change at periodic review, so the definition should refer to the values approved in the licence when the incident occurred, and those values would have to be public for claimants to test the exception. The Rooppur licences are not public (U). Second, a definition keyed to the design basis relieves the operator of liability for exactly the events in which the plant's margins are tested. That is why it should be paired with State or fund compensation, as recommended below. Third, Demougin et al. (2024) argue that safety is better served by defining the design basis carefully, and that removing the exception can aggravate moral hazard where damage may exceed the liability ceiling. A definition tied to the design basis keeps the first advantage without removing the exception.

The natural-disaster exception is the clearest example in the Act of a type W gap with environmental consequences. The remedy proposed is not abolition but definition, paired with a fallback source of compensation: "exceptional character" should be defined by reference to events beyond the licensed design basis, as explained above, and the State should assume responsibility, or a fund should respond, where the exception applies.

WHO IS THE OPERATOR? CHANNELLING, RECOURSE AND FINANCIAL SECURITY

Identifying the liable operator

The Act defines "operator" by reference to authorisation in the manner prescribed by regulations (s 2(40)). The NPP Act designates NPCBL as the operating organisation and BAEC as the owner organisation (ss 4(2)–(3)). The licences reported for Rooppur, however, including the siting licence and the 2026 licence for Unit 1, were issued to BAEC (BAERA, 2020, section 2; Akbar, 2026). No published regulation settling which entity is the liable "operator" at each stage of the project was located.

The question has practical weight. The entity liable under s 43 must maintain financial security under s 46. The immunity in s 28 of the NPP Act, discussed in the section on the wider accountability framework, protects some

of the persons involved in the project but not others. Until the question is settled, a claimant cannot be sure whom to sue during commissioning, and the State cannot be sure whose security its guarantee suppleme-

nts. The gap is of type U, because the licences are not public, and of type W, because the statutory definition depends on regulations not located.

Channelling

The first principle of the international regimes, a clause making the operator the only person liable, does not appear in either text of s 43. The Bangla text of s 43(1) states that the operator is liable "only" (*kebol*) for nuclear damage, a word absent from the English text. Because it stands immediately before the phrase "for nuclear damage", the more natural reading is that it limits the scope of the operator's statutory liability to nuclear damage and leaves other damage to the general law. Exclusivity in the sense of "the operator alone" would require the word to qualify "the operator". This reading is the author's own, and, because the Bangla text prevails, it is offered with that caution. On either reading, the Act does not state the exclusivity of liability that the international regimes require. Section 50(3), which preserves the individual liability of a person who intentionally causes damage, points in the same direction.

Recourse against suppliers

The Act is also silent on whether the operator has a right of recourse against suppliers. The two questions are linked, and the choice between them is a matter of policy with environmental consequences. Vendors, including the Russian exporter, have committed to a code under which they look for exclusive channelling before contracting (Bellamy, 2019). India took the opposite position and gave its operator a right of recourse against suppliers for latent or patent defects (Bellamy, 2019; Kaur, 2016). Kaur (2016) argues that relieving suppliers of all liability weakens their incentive to design safer plants, while Singh and Singha (2016) argue that the Indian Act still favours foreign suppliers and that supplier liability towards victims should be fixed. As a turnkey buyer from a single State-owned vendor, Bangladesh may reasonably choose differently from India. What matters is that the choice be made and stated in law rather than left to litigation after an incident, and that the intergovernmental agreements, which have statutory force under s 3(3) of the NPP Act, be consistent with it.

Financial security

The operator must maintain insurance or other financial security and submit its terms to the Authority for approval (s 46(1)–(2)). Because a claimant may sue the insurer or other security provider directly (s 49(2)), the security is more than a private arrangement between operator and insurer. No public information on the security arranged for Rooppur could be found (U). Since the operator is State-owned and the plant is financed largely by a State credit, the practical bearer of the risk is the public. That is consistent with Bellamy's (2019) observation that the installation State is the insurer of last resort, but it also means that the deterrent effect that insurance-based liability is meant to have on a private operator is weaker here. Publication of the approved security terms would allow the adequacy of the arrangement to be assessed.

LIABILITY AND THE WIDER ACCOUNTABILITY FRAMEWORK

The NPP Act immunity clause

Section 28 of the NPP Act bars civil or criminal proceedings, or other legal action, against the Government, the chairman, managing director, project director, directors, consultants, advisers, officers and employees for anything done in good faith in the construction and operation of nuclear power plants, whether before or after the Act came into force (author's translation). The provision names neither the operating company itself nor the strict liability regime in Chapter VII of the BAER Act. Its interaction with s 46(3) of the BAER Act, under which the Government guarantees payment of claims to the extent of the operator's inadequate security, has not been tested. The question is not academic, because both Acts contain overriding clauses (BAER Act s 3; NPP Act s 3(1)), and neither says which prevails if they conflict. A court asked to enforce the State guarantee could be met with the argument that the Government is immune from "legal action" in respect of the plant. The better view is

that a statutory guarantee of compensation is not displaced by an immunity for good-faith acts, but the point should be put beyond doubt by amendment.

Agreements with statutory force

Section 3(3) of the NPP Act makes the cooperation agreements between Bangladesh and the Russian Federation, and later agreements on nuclear power plants, an integral part of the Act. The texts of those agreements are not public as far as could be established. Any provisions they contain on channelling, recourse, indemnities or the allocation of liability for spent fuel in transit therefore have statutory force without being available to claimants, courts or researchers (U). Section 44 of the BAER Act allocates liability during transport to the sending operator until the receiving operator takes charge, unless otherwise agreed in writing, so the terms of the spent-fuel return agreement are directly relevant to who would be liable for an incident during the return journey.

Compensation for emergency measures

The Authority may order the removal of people, animals and property from a contaminated area, and the District Magistrate or Police Commissioner may enforce the order (s 41(3)–(4)). A person affected by such action cannot claim compensation from the Authority, the magistrate or any officer of the Government or the Authority (s 41(6)), a rule carried over from the 1993 Act (s 10(4)). This does not bar a claim against the operator under Chapter VII. Whether a displaced person's loss counts as nuclear damage, however, depends on the definition in s 2(23), whose limb (f) covers the costs of reasonable preventive measures approved by the competent authority. Whether evacuation losses fall within limb (f) is untested and should be clarified, because evacuation is the protective measure most likely to be used in a flood-prone, densely populated district.

Access to the courts and the Constitution

Exclusive jurisdiction over incidents in Bangladesh's territory or exclusive economic zone is given to its civil courts (s 49(1)), and a claimant may sue the operator, its insurer or any other provider of financial security (s 49(2)). Outside Chapter VII, access is narrow. A civil action for damages under s 60 is available only for loss caused by an act that is itself an offence under s 53, and a court may take cognisance of an offence only on a complaint by a person authorised by the Authority (s 57).

The Constitution offers a further route. In *Dr Mohiuddin Farooque v Secretary, Ministry of Commerce* (Writ Petition No. 92 of 1996), the High Court Division considered a consignment of imported milk powder found by BAEC's laboratory to contain radioactivity above the permitted level. The Court held that the right to life under Articles 31 and 32 includes the protection of health and normal longevity, that consumption of contaminated food can threaten it, and that the State is bound to protect the health and longevity of the people, and it directed the authorities to ensure proper testing (Environmental Law Alliance Worldwide, 1996; Global Health and Human Rights Database, 1996; Bangladesh Environmental Lawyers Association, n.d.). The case concerned imports rather than a facility, but it shows that a public-interest litigant may sue without personal injury and that the courts will scrutinise how the State applies radiological standards. It is the most likely basis on which a court could be asked to fill the gap left by the natural-disaster exception. An Indian decision points the same way. In *M.K. Sharma v Bharat Electronics Ltd* (1987), as reported by Singh and Singha (2016), the Supreme Court of India directed that workers exposed to radiation be insured before any injury had been proved, so that money would be available in the event of harm.

The transboundary dimension

Because Bangladesh belongs to no liability convention, it has no treaty relations with other States on nuclear liability. The principal benefits of a harmonised regime, certainty about jurisdiction and applicable law and the recognition and enforcement of judgments (Bellamy, 2019), are therefore unavailable. The Act's statement that liability extends to nuclear damage "wherever suffered" (s 43(1)) may prove difficult to enforce outside Bangladesh, and a foreign victim's claim, or the recognition abroad of a Bangladeshi judgment, would depend on the willingness of foreign courts (W). Rooppur lies upstream of a dense population and close to an international river system, which makes these questions more than theoretical.

LESSONS FROM OTHER JURISDICTIONS

Several of the gaps above have counterparts elsewhere, and the comparison is most useful where another country made a different choice on the same question. Table 4 brings together the foreign examples used in this article. Each entry is limited to what the cited source establishes.

Table 4. Choices made elsewhere and what they suggest for Bangladesh

Issue	Position elsewhere	Source	Implication for Bangladesh
Liability amount	India's Civil Liability for Nuclear Damage Act 2010 uses the same 300 million SDR figure; the revised Vienna Convention and the CSC make it the treaty minimum	Bellamy (2019)	The figure is defensible for a first plant. The power in s 45 to notify a higher amount is the way to raise it once the operating risk is understood
Natural-disaster exception	India retains the exception, undefined, but makes the Central Government liable where such events directly cause the damage; the 1997 Vienna Protocol removed the exception	Kaur (2016); Bellamy (2019); Demougin et al. (2024)	State liability for such events needs no change to the exception itself; a definition would narrow it (see "Defining "exceptional character"")
Terrorism and sabotage	India's Act lists terrorism among the exceptions	Kaur (2016)	Bangladesh's Act does not, which favours victims; the position should be kept
Recourse against suppliers	India gives the operator a right of recourse against suppliers for latent or patent defects, and commentators disagree on whether this goes far enough; reactor vendors have committed to a code under which they look for exclusive channelling before contracting	Bellamy (2019); Kaur (2016); Singh & Singha (2016)	The choice is one of policy. It should be stated in the Act and matched in the intergovernmental agreements (NPP Act s 3(3)); supplier liability was urged for Bangladesh in 2014 (Matin, 2014)
Financial pooling	As Berger (2008) describes them, the United States used a collective pool funded by operators and Germany an insurance layer backed by a pooling agreement among plant owners, with victims' claims ranking before recourse	Berger (2008)	A levy on the operator, built up over the plant's life, would give a State-owned operator a source of funds that does not depend on the budget after an incident
Insurability of environmental damage	Canada's 2007 proposal to cover measures to repair or mitigate environmental damage ordered under environmental legislation drew reservations from nuclear insurance pools about insurability	Berger (2008)	The terms of the security approved under s 46 should be examined and published; the definition in s 2(23) should not be narrowed
International fund	The CSC adds a second tier of funds contributed by parties; it is open to any State whose national law conforms to the Annex and which, if it has a nuclear installation, is party to the Convention on Nuclear Safety	Bellamy (2019)	Bangladesh is party to the Convention on Nuclear Safety and its law already sits close to the CSC Annex, so accession is a realistic option, subject to the review noted in the recommendations

Source: Author's compilation from the sources cited in the table.

Three points follow. India is the closest example, because it shares the 300 million SDR figure, the exception and a statute drafted after the revised conventions, and Bangladesh could adopt India's rule making the State

liable for excepted events without adopting its supplier recourse. The pooling arrangements show how a fund can be built over the life of a plant. And the inconsistency between ss 45 and 48(3) has no counterpart in the examples used here, so its remedy is drafting rather than borrowing.

FINDINGS

The analysis supports six findings, summarised in Table 5 with their evidential basis.

Table 5. Findings and their evidential basis

No.	Finding	Principal evidence	Evidence class
1	Bangladesh has a nuclear liability regime; the earlier claim that it has none is incorrect	BAER Act ss 43–50; IAEA (2022) §§1.3, 2.1	Verified (text)
2	Environmental reinstatement and loss of income from environmental use are compensable, but no claimant for environmental damage is designated, and environmental claims rank after personal injury	BAER Act ss 2(23), 48(2), 69(2)(28)	Verified (text); effect is interpretation
3	The s 45 figure is called both a maximum and a minimum, and no fund supplements it	BAER Act ss 45, 46(3), 48(2)–(3); Bangla text	Verified (text); explanation is interpretation
4	The natural-disaster exception is undefined and has no State responsibility	BAER Act ss 46(3), 50(1); Vienna Convention art. IV(3); CSC Annex	Verified (text); effect is interpretation
5	The liable operator, channelling, recourse and the financial security are unresolved or not public	BAER Act ss 2(40), 43, 46, 50(3); NPP Act ss 3(3), 4; BAERA (2020)	Verified (text); licence and security terms not public
6	The NPP Act immunity and non-membership of the conventions weaken the regime's reach	NPP Act s 28; IAEA OLA factsheet	Verified (text); interaction untested

Few of these gaps are absences of law. Most are of type W, where a provision exists but is unclear or incomplete, or of type U, where its application cannot be verified from public documents. That pattern is encouraging, because several of the remedies can be made by regulation, notification or publication under powers the Act already contains. Others need an amendment, and the recommendations below separate the two.

RECOMMENDATIONS

The following measures are listed in order of urgency. The first four should be completed before commercial operation, because they cannot easily be corrected after an incident.

First, regulations under s 45 and s 2(40) should identify the liable operator at each stage of the project, set the operator's liability per incident, and state whether the s 45 figure is a ceiling, a floor or both. A short amendment should then remove the inconsistency between s 45 and s 48(3). The terms of the financial security approved under s 46 should be published.

Second, "grave natural disaster of an exceptional character" should be defined by reference to events beyond the design basis approved for the installation, and the Act should provide a source of compensation where the exception applies, either through State assumption of liability, as in India, or through a dedicated fund.

Third, the Department of Environment or another body should be designated as the competent authority to assess environmental damage and claim reinstatement costs, with a procedure for approving reinstatement and preventive measures, including evacuation.

Fourth, s 28 of the NPP Act should be amended so that it does not apply to liability or to the State guarantee under Chapter VII of the BAER Act, and the provisions of the intergovernmental agreements that bear on liability should be published.

Fifth, the position on channelling and on recourse against suppliers should be stated expressly in the Act.

Sixth, a fund financed by a levy on the operator during operation should be considered, and the power in s 45 to raise the liability amount should be used once operating experience allows the risk to be assessed.

Seventh, Bangladesh should consider accession to the CSC or the revised Vienna Convention. The Act's definition of nuclear damage, its liability amount and its jurisdiction rule already sit close to the CSC Annex, so accession is a realistic option, subject to review of the exceptions, channelling and the time limits. Accession would also provide access to the CSC's second tier of international funds and a treaty basis for the recognition of judgments.

The measures differ in who controls them. Table 6 separates those that the Government and the Authority can take under powers the Act already contains from those that need Parliament, and from the one that needs a treaty step.

Table 6. Recommendations by the instrument they require

Measure	Provisions	Instrument required	Who acts
First: identify the liable operator at each stage; set the operator's liability per incident; state whether the s 45 amount is a ceiling, a floor or both; publish the approved security terms	BAER Act ss 2(40), 45, 46(2)	Regulations under ss 45 and 2(40); publication is administrative. A short amendment is the clean way to remove the inconsistency between ss 45 and 48(3)	Government and the Authority; Parliament for the amendment
Second: define "exceptional character" by reference to the licensed design basis; provide a source of compensation for excepted events	BAER Act ss 46(3), 50(1)	Amendment of s 50 and of s 46(3), or a new fund provision. Whether the s 69 rule-making power could carry the definition should be checked	Parliament; the Authority for design-basis values
Third: designate a body to assess environmental damage and claim reinstatement costs, with a procedure for approving reinstatement and preventive measures, including evacuation	BAER Act ss 2(23)(d) and (f), 69(2)(28)	Regulations under s 69(2)(28). An amendment is needed only if the designated body requires standing that the Act does not give	Government; the body designated
Fourth: disapply s 28 of the NPP Act to Chapter VII liability and the State guarantee; publish the liability provisions of the intergovernmental agreements	NPP Act ss 3(3), 28	Amendment of s 28; publication is administrative	Parliament; Government
Fifth: state the position on channelling and on recourse against suppliers	BAER Act s 43; NPP Act s 3(3)	Amendment of Chapter VII, with the intergovernmental agreements brought into line	Parliament; Government
Sixth: consider an operator-financed fund; use the power to raise the s 45 amount	BAER Act s 45	Fund: new legislation. Raising the amount: notification by the Government, which s 45 already permits	Parliament for a fund; Government for the notification
Seventh: consider accession to the CSC or the revised Vienna Convention	–	Treaty accession, followed by review of the exceptions, channelling and time limits	Government

Source: Author's analysis. The classification of instruments is the author's view of what the cited provisions permit and should be tested against the rule-making powers of the Government and the Authority.

Most of the first and third measures, and the notification under the sixth, can be taken by regulation, notification or publication. The second, fourth and fifth measures, and the fund proposed in the sixth, need an amendment. The seventh is a treaty step. Because the first four measures are the most urgent and two of them, the second and the fourth, need an amendment, the Government should prepare the amending bill in parallel with the regulations rather than after them.

CONCLUSION

Bangladesh's nuclear liability law is not the empty space that parts of the literature suggest. Chapter VII of the BAER Act is modelled on the international conventions, treats environmental damage as compensable, allows long periods for claims and gives victims direct action against insurers. Its weaknesses are specific: an amount the Act describes in two inconsistent ways, an undefined natural-disaster exception with no State responsibility, no claimant for the environment, an operator whose identity depends on regulations not located, silence on channelling and recourse, an immunity clause in a parallel statute, and isolation from the international regime.

What makes these weaknesses urgent is timing. Bangladesh's first reactor reached criticality in October 2026. Each gap identified here has a legislative, regulatory or treaty remedy, and each is cheaper and more effective to correct before commercial operation than after an incident. The gaps also share a common feature: they would matter most in a severe event caused or worsened by the floods, cyclones and earthquakes to which Bangladesh is most exposed. A liability regime that works in ordinary conditions but fails in exactly those circumstances would leave the people and the environment around the plant least protected when protection is most needed.

This article relied on statutory texts, the 2022 IAEA review and the regulator's own reports, and it could not examine the licences, the intergovernmental agreements, the general contract or the approved financial security. Further work should test its conclusions against those documents as they become available, and should follow how the regulator and the courts interpret Chapter VII as operation proceeds.

ACKNOWLEDGEMENTS

The author completed a doctoral degree at the School of International Law, Southwest University of Political Science and Law, in 2024.

DECLARATIONS

Conflict of interest. The author declares no conflict of interest.

Ethics statement. This study is a doctrinal analysis of published legislation, treaties, case law, reports and other public documents. It involved no human participants, personal data or animals, so ethical approval was not required.

Data availability. No datasets were generated or analysed in this study. All materials relied on are cited in the References. The licences, intergovernmental agreements, general contract and terms of financial security mentioned in the article are not public and were not examined.

Author contribution. The author is solely responsible for the conception, content and final approval of this article.

Funding. This research received no external funding.

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