

Environment and Disaster Management as delineated in Kauṭilya's Arthaśāstra

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Introduction

This is the second of a series of articles by the author who is the Principal Investigator of 'Indian Knowledge System (IKS) Samvardhini Project 2022-2023' of the Government India, the title of the Project being "The relevance and applicability of Chanakya's (Kauṭilya) Arthaśāstra for solving current societal problems." This Project brings to focus the principles of Arthaśāstra, the *magnus opus* of Kauṭilya (also known as Chanakya), which is an immortal ancient treatise on politics, economics, military strategy, the function of the state, and social organization. The purpose of this IKS project is to revisit this mine of wisdom, Arthaśāstra, with specific focus on the following topics that have great relevance and applicability in the modern times.

1. Swachh Bharat Mission
2. Environment and Disaster Management
3. Atma-Nirbhar Bharat
4. Concept of 'One Health'
5. Preservation of justice as proclaimed in the Constitution of India

The present article, the second in the series of five articles to be published in the Wikipedia page of the author created by the IKS Division of the Government of India, takes up the second of the 'thrust areas', namely, '**Environment and Disaster Management**' as delineated by Kauṭilya's Arthaśāstra.

The adverse effect of human activity on environment has been greatly felt since 1970 which has become a matter of increasing concern and international policies have been framed and executed over the past thirty years to mitigate this impact.¹ Disasters related to environment have become a common feature in modern times due to widespread cutting of trees leading to soil erosion, global warming, life style changes, etc., thus severely harming and adversely impacting Nature's own course of action. The field of 'Environment and Disaster Management' aims at preventing and reducing the impacts of disasters on vulnerable communities and countries through improved ecosystem-based or Nature based Solutions (NbS) which can reduce the risk of disaster as well as provide co-benefits from ecosystem services that will contribute to livelihood. According to the report published in April 2015 by the secretariat of the International Strategy for Disaster Reduction (ISDR), it is estimated that around 478,100 people have been killed, more than 2.5 billion people

¹*Environment and Disaster Risk: Emerging Perspectives*. UN/ISDR secretariat, p. 3.

have suffered from disasters and an economic loss of US\$ 690 billion has incurred.² The wisdom embodied in the ancient text, Kauṭilya's Arthaśāstra, provides us fresh insights into 'environment and disaster management' which may be adapted and applied in the modern context of a world struggling to tackle and mitigate such problems.

In this article, we focus on the different measures adopted by the Kauṭilyan territory for warding off disasters such as flood, famine, fire, epidemics etc. It is considered that environmental conservation and disaster management are often critical to communities living in "hazard-prone areas." The indigenous people through years of experience have built up a significant store house of knowledge accumulated due to their intimate relation with nature. With rapid changes in lifestyle among various strata of people, there has been serious disruption in the traditional lifestyle of peoples, thereby affecting transmission of the indigenous knowledge through the generations.³ In such a scenario, it is being increasingly felt by thinking men and women that traditional knowledge should "complement scientific knowledge in the development of community based disaster risk management plans and programmes."⁴ With this need in mind, we look into the indigenous practices found in Kauṭilya's Arthaśāstra to mitigate several disasters hazardous to life and environment.

The discussion is divided into ten sections.

1. Identification of calamities⁵ and need to protect the country from them

The Arthaśāstra talks about a list of calamities and expresses concern to protect the country from them. Eight calamities identified by the kingdom are stated in the following verse:

दैवान्यष्टौ महाभयानि अग्निरुदकं व्याधिर्दुर्भिक्षं मूषिका व्यालाः सर्पा रक्षांसि इति॥०४.३.०१॥
daivānyaṣṭau mahābhayāni agnirudakam vyādhirdurbhikṣam mūṣikā vyālāḥ śarpā rakṣāṃsi
iti॥04.3.01॥

"There are eight calamities of a divine⁶ origin: fire, floods, disease, famine, rats, wild animals, serpents and evil spirits." (Kangle 1969, p.262)

It is considered necessary to fight these calamities:

²For more information visit <https://www.gdrc.org/uem/disasters/disenvi/intro.html>

³*Environment and Disaster Risk: Emerging Perspectives*. UN/ISDR secretariat, p.20.

⁴ Ibid.

⁵"Both calamity and disaster refer to events that cause damage, destruction, and loss. Although these two words can be used interchangeably, there is a subtle difference between calamity and disaster. The key difference between calamity and disaster would be their severity; calamity is considered to be more severe and destructive than disaster. However, disaster is the most commonly used word out of these two words" (Hasa 2017).

We here use the two terms, 'disaster' and 'calamity' interchangeably.

⁶ The original Sanskrit word used in the text is *daivani* which has been translated here as 'divine'. A better translation could be, 'pertaining to the forces of Nature'.

तेभ्यो जनपदं रक्षेत्॥०४.३.०२॥

tebhyo janapadaṃ rakṣet॥04.3.2॥

“From them [fire, flood, disease, famine, rats, wild animals, serpents and evil spirits] he [the king or a ruler] should protect the country.” (Kangle 1969, p.262)

In many a case, detecting disasters and disseminating timely and accurate information and warnings prevent human and economic losses. The Arthaśāstra expounds, with deep insight, extensive measures to deal with various disasters. Disaster preparedness includes a list of measures that are adopted in advance by governments, organisations, communities, or individuals to effectively tackle the immediate repercussions of an imminent disaster.⁷ The Arthaśāstra describes the measures for such alertness to avert various disasters that invaded the kingdom from time to time.

2. Preventive measures of the Kauṭilyan kingdom against fire

The kingdom asks fellowmen to be alert in summers to ward off fire:

अग्नि-प्रतीकारं च ग्रीष्मे॥०२.३६.१५॥

agni-pratīkāraṃ ca grīṣme॥02.36.15॥

“And (citizens shall take) steps against (an outbreak of) fire in summer.” (Kangle 1969, p.186)

There is mention of specific fines for kindling fire in the hours of the day when it is restricted:

मध्यमयोरह्नश्चतुर्-भागयोरष्ट-भागः अग्नि-दण्डः॥०२.३६.१६॥

madhyamayorahnaścatur-bhāgayoraṣṭa-bhāgaḥ agni-daṇḍaḥ॥02.36.16॥

“In the two middle quarters of the day, one-eighth (of a *paṇa*) is the fine for (kindling) fire.” (Kangle 1969, p.186)

Instruction is given alternatively to cook outside the houses in open spaces to prevent houses from catching fire:

बहिरधिश्चयणं वा कुर्युः॥०२.३६.१७॥

bahiradhiśrayaṇaṃ vā kuryuḥ॥02.36.17॥

“Or they should do their cooking outside (the house).” (Kangle 1969, p.186)

Such was the instruction given especially during summers. It is said:

ग्रीष्मे बहिरधिश्चयणं ग्रामाः कुर्युः। दशमूलीसंग्रहेणाधिष्ठिता वा॥०४.३.०३॥

⁷https://civil-protection-humanitarian-aid.ec.europa.eu/what/humanitarian-aid/disaster-preparedness_en

grīṣme bahiradhiśrayaṇaṃ grāmāḥ kuryuḥ | daśamūlīsaṃgrahaṇādhiṣṭhitā vā ||04.3.03 ||

“In summer, the villages shall do the cooking outside (the houses) or being protected by a collection of ten fire-fighting implements.” (Kangle 1969, p.262)

The Arthaśāstra lays down instructions for keeping certain equipment ready to fight fire. Lack of arrangement of these equipment was met with fine:

पादः पञ्च-घटीनां कुम्भ-द्रोणि-निहृश्रेणी-परशु-शूर्प-अङ्कुश-कच-ग्रहणी-दृतीनां चाकरणे॥ ०२.३६.१८॥
pādaḥ pañca-ghaṭīnāṃ kumbha-droṇi-nihśreṇī-paraśu-śūrpa-aṅkuśa-kaca-grahaṇī-dṛtīnām
cākaraṇe ||02.36.18 ||

“One quarter (of a *paṇa* is the fine) for not providing five jars, also a big jar, a trough, a ladder, an axe, a winnowing-basket, a hook, a ‘hair-seizer’ and a skin bag.” (Kangle 1969, p.186)

Apart from the responsibilities of the citizens of the kingdom to fight fire, the City Superintendent also had certain responsibilities in matters of dealing with fire:

तृणकटच्छन्नान्यपनयेत्॥ ०२.३६.१९॥

trṇakatacchannānyapanayet ||02.36.19 ||

“The (City Superintendent) should remove things covered with grass or matting.” (Kangle 1969, p.186)

Inflammable objects were removed from localities to prevent fire from spreading in the residential areas. Further, the prudence of the City Superintendent is revealed when he shifted blacksmiths, artisans and other workers who worked with fire into one single locality. That was done with the similar intention to prevent the spread of fire:

अग्निजीविन एकस्थान् वासयेत्॥ ०२.३६.२०॥

agnijīvina ekasthān vāsayet ||02.36.20 ||

“He shall make those who live by (the use of) fire, reside in one locality.” (Kangle 1969, p.186)

The Arthaśāstra also mentions the role of a householder to fight fire:

स्व-गृह-प्रद्वारेषु गृह-स्वामिनो वसेयुः असम्पातिनो रात्रौ॥ ०२.३६.२१॥

sva-gr̥ha-pradvāreṣu gr̥ha-svāmino vaseyuḥ asampātino rātrau ||02.36.21 ||

“House-owners should live near the front doors of their own houses, not collecting together at night.” (Kangle 1969, p.186)

Such was the instruction given to householders so that they could easily make escape route for other members of the family and deal with fire more effectively.

The following verse reflects the action taken against a tenant apart from a householder for being reluctant to fight fire:

प्रदीप्तं अनभिधावतो गृह-स्वामिनो द्वादश-पाणो दण्डः। षट्-पाणो अवक्रयिणः॥०२.३६.२३॥

pradīptaṃ anabhidhāvato gr̥ha-svāmīno dvādaśa-ṇaṇo daṇḍaḥ | ṣaṭ-ṇaṇo
avakrayiṇaḥ ||02.36.23 ||

“For the owner, not running to save the house on fire, the fine (shall be) twelve *paṇas*, six *paṇas* for a tenant.” (Kangle 1969, p.186)

Apart from the responsibility of a householder and a tenant, community responsibility to prevent outbreak of fire is also noticed:

रथ्यासु कुट-व्रजाः सहस्रं तिष्ठेयुः। चतुष्पथ-द्वार-राज-परिग्रहेषु च॥०२.३६.२२॥

rathyāsū kuṭa-vrajāḥ sahasraṃ tiṣṭheyuḥ | catuspatha-dvāra-rāja-parigraheṣu ca
||02.36.22 ||

“Collection of water-jars should be placed in thousands on roads and at cross-roads, gates and in royal precincts.” (Kangle 1969, p.186)

Negligence of duty in matters of fighting fire also did not escape notice of the administrator:

प्रमादादीप्तेषु चतुष्पाञ्चाशत्पाणो दण्डः॥०२.३६.२४॥

pramādāddīpteṣu catuspañcāśatpaṇo daṇḍaḥ ||02.36.24 ||

“In case of (houses) catching fire through negligence, the fine (shall be) fifty-four *paṇas*.” (Kangle 1969, p.186)

There are detailed rules laid down for the City Superintendent to fight fire and also about his actions in case of royal possessions:

नागरिकप्रणिधावग्निप्रतिषेधो व्याख्यातः। निशान्तप्रणिधौ राजपरिग्रहे च॥०४.३.०४॥

nāgarikapraṇidhāvagnipratīṣedho vyākhyātaḥ | niśāntapraṇidhau rājaparigrahe ca ||04.3.04 ||

“Prevention of fire is explained in ‘Rules for the City Superintendent’ and in connection with royal possessions in ‘Rules for the Royal Residence.’” (Kangle 1969, p.262)

Apart from several practical measures of the kingdom to ward off fire, there is also mention of certain rituals to avert the hazards of the disaster like fire:

बलिहोमस्वस्तिवाचनैः पर्वसु चाग्नि-पूजाः कारयेत्॥०४.३.०५॥

balihomasvastivācanaiḥ parvasu cāgni-pūjāḥ kārayet ||04.3.05 ||

“And on the *parvan*-days, he should cause worship of the fire to be made with offerings, oblations in fire and recitals of benedictions.” (Kangle 1969, p.262)

Fire is considered as one of the destructive manmade disasters, the primary cause of its occurrence being lack of caution among people. The kingdom of Kauṭilya with its elaborative steps such as spread of awareness among citizens of the hazardous effect of fire, assigning duties to them to combat its outbreak as well as imposing fines for negligence of duties reveal disaster preparedness which in many cases helped to save lives and properties. The next important disaster identified by the kingdom of Kauṭilya is flood.

3. Preventive measures of the Kauṭilyan kingdom against flood

The kingdom also is seen to take effective measures to fight flood. Places which were low and densely populated were given special attention. Citizens were shifted from these low-lying areas during flood to avoid loss of life.

वर्षारात्रम् आनूपग्रामाः पूरवेलाम् उत्सृज्य वसेयुः॥०४.३.०६॥

varṣārātram ānūpagrāmāḥ pūravelām utsrjya vaseyuh ॥04.3.06॥

“In the rainy season, villages situated near water should live away from the level of the floods.” (Kangle 1969, p.263)

Further, the residents of these places were advised to keep certain equipment ready at hand during floods:

काष्ठवेणुनावश्चोपगृह्णीयुः॥०४.३.०७॥

kāṣṭhaveṇunāvaścopagrñīyuh ॥04.3.07॥

“And they should keep a collection of wooden planks, bamboos and boats.” (Kangle 1969, p.263)

Residents of these places are also responsible for taking care of other fellowmen in those areas in times of crisis:

उह्यमानम् अलाबुदृतिप्लवगण्डिकावेणिकाभिस्तारयेयुः॥०४.३.०८॥

uhyamānam alābudṛtiplavagaṇḍikāveṇikābhistārayeyuh ॥04.3.08॥

“They should rescue a (person) being carried away (by the flood) by means of gourds, skin-bags, canoes, tree-stems and rope-braids.” (Kangle 1969, p.263)

Punishment is also levied on those who do not rescue fellowmen in the times of flood:

अनभिसरतां द्वादशपाणो दण्डः। अन्यत्र प्लवहीनेभ्यः॥०४.३.०९॥

anabhisaratām dvādaśapaṇo daṇḍaḥ | anyatra plavahīnebhyah ॥04.3.09॥

“For those who do not go to the rescue, the fine is twelve *paṇas*, except in the case of those without canoes.” (Kangle 1969, p.263)

The controller of shipping is also been entrusted with the following duties:

मूढ-वात-आहतानावः पिता इवानुगृह्णीयात्॥०२.२८.०८॥

mūḍha-vāta-āhatānāvah pitā ivānugrṇṇīyāt ॥02.28.08 ॥

“He should rescue boats that have gone out of their course or are tossed about by a gale, like a father.”(Kangle 1969, p.162)

शासक-निर्यामक-दात्र--रश्मि-ग्राहक-उत्सेचक-अधिष्ठिताश्च महानावो हेमन्त-ग्रीष्म-तार्यासु महा-नदीषु प्रयोजयेत्। क्षुद्रिकाः क्षुद्रिकासु वर्षा-स्राविणीषु॥०२.२८.१३॥

śāsaka-niryāmakā-dātra--raśmi-grāhaka-utsecaka-adhiṣṭhitāśca mahānāvo hemanta-grīṣma-tāryāsu mahā-nadīṣu prayojayet | kṣudrikāḥ kṣudrikāsu varṣā-srāviṇīṣu ॥02.28.13 ॥

“And he should keep in use big boats in charge of a captain, a pilot, a manipulator of the cutter and ropes and a bailer of water, on big rivers that have to be ferried on (even) in winter and summer, small ones on small rivers flowing (only) in the rainy season.” (Kangle 1969, p.163)

Rituals and certain occult practices are also seen to be in vogue to ward off flood:

पर्वसु च नदी-पूजाः कारयेत्॥०४.३.१०॥

parvasu ca nadī-pūjāḥ kārayet ॥04.3.10 ॥

“And on the *parvan*-days he should cause worship of the rivers to be carried out.” (Kangle 1969, p.263)

माया-योगविदो वेदविदो वा वर्षम् अभिचरेयुः॥०४.३.११॥

māyā-yogavido vedavidō vā varṣam abhicareyuḥ ॥04.3.11 ॥

“Experts in the practice of magic or those versed in the Vedas should use spells against rain.” (Kangle 1969, p.263)

Like fire, floods also cause massive devastation. Global warming has accelerated the occurrence of floods resulting in widespread loss of life, damage of vegetation, public property, health etc. The kingdom of Kauṭilya reveals the indigenous knowledge and practices adopted to prevent floods as well as the alertness of the perils that floods bring on life and property.

4. Preventive measures of the Kauṭilyan kingdom against diseases or epidemics

There are prescriptions of certain duties for people of various positions to ward off diseases or epidemics:

व्याधि-भयं औपनिषदिकैः प्रतीकारैः प्रतिकुर्युः। औषधैश्चिकित्सकाः शान्ति-प्रायश्चित्तैर्वा सिद्ध-
तापसाः॥०४.३.१३॥

vyādhi-bhayaṃ aupaniṣadikāiḥ pratīkāraiḥ pratikuryuḥ | auśadhaiścikitsakāḥ śānti-
prāyaścittairvā siddha-tāpasāḥ ॥04.3.13 ॥

“The calamity of disease, (magicians and others) should counteract with secret means, physicians with medicines or holy ascetics with pacificatory and expiatory rites.” (Kangle 1969, p.263)

तेन मरको व्याख्यातः॥०४.३.१४॥

tena marako vyākhyātaḥ ॥04.3.14 ॥

“By that is explained the epidemic.” (Kangle 1969, p.263)

The kingdom also prescribes certain measures to stop spread of epidemics among domestic animals:

पशु-व्याधि-मरके स्थान-अर्थ-नीराजनं स्व-दैवत-पूजनं च कारयेत्॥०४.३.१६॥

paśu-vyādhi-marake sthāna-artha-nīrājanam sva-daivata-pūjanam ca kārayet ॥04.3.16 ॥

“In case of disease or epidemics among cattle, he should order lustration rites in connection with the sheds and objects (connected with them) and worship of their respective deities.” (Kangle 1969, p.263)

तीर्थ-अभिषेचनं महा-कच्छ-वर्धनं गवां श्मशान-अवदोहनं कबन्ध-दहनं देव-रात्रिं च कारयेत्॥०४.३.१५॥

tīrtha-abhiṣecanam mahā-kaccha-varadhanam gavāṃ śmaśāna-avadohanam kabandha-dahanam
deva-rātriṃ ca kārayet ॥04.3.15 ॥

“He should cause to be instituted bathing in sacred places, worship of Mahākaccha, milking of cows in cremation grounds, burning of effigies and a night (festival in honour) of gods.” (Kangle 1969, p.263)

This reveals the ritualistic practices of the kingdom in case of epidemics. It is appreciable that indigenous people recognized epidemics as one of the disasters hazardous to life. In the modern world we have the concept of ‘One Health’ which talks of a collaborative, multi-sectoral and transdisciplinary approach to address the potential risks that arise due to ‘animal-human-ecosystems interface’.⁸ This concept considers the interconnectivity of lives where the health of one sector assures the health of other sectors. The kingdom of Kauṭilya looking into the welfare of its fellow beings also at the same time tried to adopt effective measures to fight diseases that invaded the animal kingdom.

⁸(Mackenzie and Jeggo, 2019).

5. Preventive measures of the Kauṭilyan kingdom against famine

The Arthaśāstra lists various responsibilities of a king at times of famine keeping in mind the welfare of his fellowmen:

दुर्भिक्षे राजा बीज-भक्त-उपग्रहं कृत्वा अनुग्रहं कुर्यात्। दुर्ग-सेतु-कर्म वा भक्त-अनुग्रहेण। भक्त-संविभागं वा। देश-
निक्षेपं वा॥०४.३.१७॥

durbhikṣe rājā bīja-bhakta-upagrahaṁ kṛtvā anugrahaṁ kuryāt | durga-setu-karma vā bhakta-
anugraheṇa | bhakta-saṁvibhāgaṁ vā | deśa-nikṣepaṁ vā ||04.3.17 ||

“During a famine, the king should make a store of seeds and foodstuffs and show favour (to the subjects), or (institute) the building of forts, or water-works with the grant of food, or share (his) provisions (with them), or entrust the country (to another king).” (Kangle 1969, p.263)

The king has to maintain cordial relations with neighbouring kingdoms to tackle this hard situation:

मित्राणि वा व्यपाश्रयेत्। कर्शनं वमनं वा कुर्यात्॥०४.३.१८॥

mitrāṇi vā vyapāśrayeta | karśanaṁ vamaṇaṁ vā kuryāt ||04.3.18 ||

“Or, he should seek shelter with the allies, or cause a reduction or shifting (of the population).” (Kangle 1969, p.263)

The other options left with the king are:

निष्पन्न-सस्यं अन्य-विषयं वा सजन-पदो यायात्। समुद्र-सरस्तटाकानि वा संश्रयेत्॥०४.३.१९॥

niṣpanna-sasyaṁ anya-viṣayaṁ vā sajana-pado yāyāt | samudra-sarastatākāni vā
saṁśrayeta ||04.3.19 ||

“Or, he should migrate with the people to another region where crops have grown, or settle along the sea, lakes or tanks.” (Kangle 1969, pp.263-264)

धान्य-शाक-मूल-फल-आवापान् वा सेतुषु कुर्वीत। मृग-पशु-पक्षि-व्याल-मत्स्य-आरम्भान्वा॥०४.३.२०॥

dhānya-śāka-mūla-phala-āvāpān vā setuṣu kurvīta | mṛga-paśu-pakṣi-vyāla-matsya-
ārambhānvā ||04.3.20 ||

“He should make sowing of grains, vegetables, roots and fruits along the water-works or hunt deer, beasts, birds, wild animals and fish.” (Kangle 1969, p.264)

Oblation to Gods and goddesses are offered to fight the situation of drought:

वर्ष-अवग्रहे शची-नाथ-गङ्गा-पर्वत-महा-कच्छ-पूजाः कारयेत्॥०४.३.१२॥

varṣa-avagrahe śacī-nātha-gaṅgā-parvata-mahā-kaccha-pūjāḥ kārayet ||04.3.12 ||

“In case of drought, he should cause worship of the Lord of Śaci, the Ganges, the Mountains and the Mahākaccha to be made.” (Kangle 1969, p.263)

This is mainly the ritualistic aspect revealed of the kingdom to tackle situation like drought. We know that drought leaves a larger impact on the ecosystems, agriculture of the affected regions. Further it causes serious harm to the local economy. The indigenous people were aware of the dangers of famine and king took all possible measures to handle this crisis.

6. Preventive measures of the Kauṭilyan kingdom against rats

The kingdom adopted the following measures to fight the dangers from rats:

मूषिक-भये मार्जार-नकुल-उत्सर्गः॥०४.३.२१॥

mūṣika-bhaye mārjāra-nakula-utsargaḥ ॥04.3.21 ॥

“In case of danger from rats, cats and ichneumons should be let loose.” (Kangle 1969, p.264)

सुहि-क्षीर-लिप्तानि धान्यानि विसृजेद्। उपनिषद्-योग-युक्तानि वा॥०४.३.२३॥

snuhi-kṣīra-liptāni dhānyāni visrjed। upaniṣad-yoga-yuktāni vā ॥04.3.23 ॥

He should strew grains smeared with the milk of *snuhi*-plants or such as are mixed with secret mixtures.”(Kangle 1969, p.264)

मूषिक-करं वा प्रयुञ्जीत॥०४.३.२४॥

mūṣika-karaṁ vā prayuñjīta ॥04.3.24 ॥

“Or, he should institute a tax in rats.” (Kangle 1969, p.264)

There is also the ritualistic side to prevent the danger:

शान्तिं वा सिद्ध-तापसाः कुर्युः॥०४.३.२५॥

śāntim vā siddha-tāpasāḥ kuryuḥ ॥04.3.25 ॥

“Or, holy ascetics should perform pacificatory rites.” (Kangle 1969, p.264)

पर्वसु च मूषिक-पूजाः कारयेत्॥०४.३.२६॥

parvasu ca mūṣika-pūjāḥ kārayet ॥04.3.26 ॥

“And on the *parvan*-days, he should order worship of rats.” (Kangle 1969, p.264)

7. Preventive measures of the Kauṭilyan kingdom against serpents

The kingdom took the help of experts in detecting poison to ward off serpents:

सर्प-भये मन्त्रैरोषधिभिश्च जाङ्गुलीविदश्चरेयुः॥०४.३.३५॥

sarpa-bhaye mantrairoṣadhibhiśca jāṅgulīvidaścareyuh ॥04.3.35 ॥

“In case of danger from serpents, experts in poison-cure should act with charms and medicines.”
(Kangle 1969, p.264)

There is also the ritualistic side to ward off the serpents noticed in the following verses:

अथर्व-वेदविदो वा अभिचरेयुः॥०४.३.३७॥

atharva-vedavido vā abhicareyuh ॥04.3.37 ॥

“Or, experts in the Atharvaveda lore should use magic spells.” (Kangle 1969, p.264)

पर्वसु च नाग-पूजाः कारयेत्॥०४.३.३८॥

parvasu ca nāga-pūjāḥ kārayet ॥04.3.38 ॥

“And on *parvan*-days, he should order worship of cobras.” (Kangle 1969, p.264)

तेनौदक-प्राणि-भय-प्रतीकारा व्याख्याताः॥०४.३.३९॥

tenaudaka-prāṇi-bhaya-pratīkāra vyākhyātāḥ ॥04.3.39 ॥

“By that are explained remedies against danger from aquatic creatures.” (Kangle 1969, p.264)

Kauṭilya has clear instructions to the community for protection of buildings from serpents. It is said:

जीवन्ती-श्वेता-मुष्कक-पुष्प-वन्दाकाभिरक्षीवे जातस्याश्वत्थस्य प्रतानेन गुप्तं सर्पा विषाणि वा न
प्रभवन्ति॥०१.२०.०५॥

jīvantī-śvetā-muṣkaka-puṣpa-vandākābhirakṣīve jātasyāśvatthasya pratānena guptaṁ sarpā viṣāṇi
vā na prabhavanti ॥ 01.20.05 ॥

“Serpents or poisons do not have (their) power in a (residence) protected by (a string of) shoots
of the *Aśvattha* growing on wet land together with (shoots) of *Jīvantī*, *Śvetā*, *Muṣkaka* and
Puṣpavandākā (plants).” (Kangle 1969, p.49)

The community also had the practice of keeping peacocks, ichneumons and spotted deer in the
premises for preventing serpents in the premises:

मयूर-नकुल-पृषत-उत्सर्गः सर्पान्भक्षयति॥०१.२०.०६॥

mayūra-nakula-prṣata-utsargaḥ sarpānbhakṣayati ॥ 01.20.06 ॥

“Letting loose peacocks, ichneumons and spotted deer (on the premises) destroys serpents.”
(Kangle 1969, p.49)

The community took help of several natural signals when the danger due to serpents invaded the locality. These are cited in the verses below:

शुकः सारिका भृङ्ग-राजो वा सर्प-विष-शङ्कायां क्रोशति॥०१.२०.०७॥

śukaḥ sārīkā bhr̥ṅga-rājo vā sarpa-viṣa-śaṅkāyāṃ krośati || 01.20.07 ||

“The parrot, the startling or the fork-tailed shrike shrieks when there is fear of serpents or poison.” (Kangle 1969, p.49)

क्रौञ्चो विष-अभ्याशे माद्यति। ग्लायति जीवं-जीवकः। म्रियते मत्त-कोकिलः। चकोरस्याक्षिणी
विरज्येते॥०१.२०.०८॥

krauñco viṣa-abhyāśe mādyati | glāyati jīvaṃ-jīvakah | mriyate matta-kokilah | cakorasyākṣiṇī
virajyete || 01.20.08 ||

“The heron becomes frantic in the proximity of poison, the pheasant becomes faint, the intoxicated cuckoo dies, the eyes of the *Cakora*-partridge becomes discoloured.” (Kangle 1969, p.49)

8. Preventive measures of the Kauṭilyan kingdom against wild animals

In order to protect the kingdom from the dangers of wild animals the following measures were taken:

व्याल-भये मदन-रस-युक्तानि पशु-शवानि प्रसृजेत्। मदन-कोद्रव-पूर्णान्यौदर्याणि वा॥०४.३.२८॥

vyāla-bhaye madana-rasa-yuktāni paśu-śavāni prasrjet | madana-kodrava-pūrṇānyaudaryāṇi
vā || 04.3.28 ||

“In case of danger from wild animals, he should leave carcasses of cattle mixed with a stupefying liquid or intestines (of cattle) filled with *madanakodrava*.” (Kangle 1969, p.264)

There is mention even of the method to trace and trap wild animals to prevent harm to other living communities:

लुब्धकाः श्व-गणिनो वा कूट-पञ्जर-अवपातैश्चरेयुः॥०४.३.२९॥

lubdhakāḥ śva-gaṇino vā kūṭa-pañjara-avapātaiścāreyuḥ || 04.3.29 ||

“Fowlers or hunters should busy themselves with concealed cages and pits.” (Kangle 1969, p.264)

There is mention of fine imposed on an individual for reluctance to protect others from wild animals:

अनभिसर्तुर्द्वादश-पणो दण्डः॥०४.३.३१॥

anabhisarturdvādaśa-ṇaḥ daṇḍaḥ || 04.3.31 ||

“For one not going forth to help, the fine shall be twelve *pañas*.” (Kangle 1969, p.264)

There is even mention of the ritualistic side to fight the danger of wild animals:

पर्वसु च पर्वत-पूजाः कारयेत्॥०४.३.३३॥

parvasu ca parvata-pūjāḥ kārayet ॥04.3.33 ॥

“And he should order the worship of mountains on *parvan*-days.” (Kangle 1969, p.264)

तेन मृग-पशु-पक्षि-संघ-ग्राह-प्रतीकारा व्याख्याताः॥०४.३.३४॥

Tena mṛga-paśu-pakṣi-saṃgha-grāha-pratīkāra vyākhyātāḥ ॥04.3.34 ॥

“By that are explained remedies against herds of deer or beasts, swarms of birds and crocodiles.” (Kangle 1969, p.264)

9. Preventive measures of the Kauṭilyan kingdom against evil spirits

Evil spirit is also considered as one of the disasters (discussed before) and the kingdom instructed certain magic spells to ward off evil spirits:

रक्षो-भये रक्षो-घ्नान्यथर्व-वेदविदो माया-योगविदो वा कर्माणि कुर्युः॥०४.३.४०॥

rakṣo-bhaye rakṣo-ghnānyatharva-vedavido mājā-yogavido vā karmāṇi kuryuḥ ॥04.3.40 ॥

“In case of danger from evil spirits, experts in the Atharvaveda lore or experts in the practice of magic should perform rites for destroying evil spirits.” (Kangle 1969, p.264)

पर्वसु च वितर्दिच्छत्र-उल्लोपिका-हस्त-पताकाच्छाग-उपहारैश्चैत्यपूजाः कारयेत्॥०४.३.४१॥

parvasu ca vitardicchatra-ullopikā-hasta-patākācchāga-upahāraiścaityapūjāḥ kārayet ॥04.3.41 ॥

“And on *parvan*-days, he should order worship of *caitya* trees with offerings of raised platforms, umbrellas, food, small flags and goats.” (Kangle 1969, p.264)

‘चरुं वश्चरामः’ इत्येवं सर्व-भयेष्वहो-रात्रं चरेयुः॥०४.३.४२॥

‘caruṃ vaścarāmaḥ’ ityevaṃ sarva-bhayeṣvaho-rātraṃ careyuḥ ॥04.3.42 ॥

“In case of all (kinds of) danger, they should make offering day and night, saying ‘We offer you the oblation.’” (Kangle 1969, p.264)

सर्वत्र चौपहतान्पिता इवानुगृह्णीयात्॥०४.३.४३॥

sarvatra caupahatānpitā ivānugrṇīyāt ॥04.3.43 ॥

“And in all cases, he should favour the stricken (subjects) like a father.” (Kangle 1969, p.264)

मायायोगविदस्तस्माद्विषये सिद्धतापसाः।

वसेयुः पूजिता राज्ञा दैवापत्प्रतिकारिणः॥०४.३.४४॥

māyāyogavidastasmādviṣaye siddhatāpasāḥ॥

vaseyuh pūjitā rājñā daivāpatpratikāriṇaḥ॥04.3.44॥

“Therefore, experts in the practice of magic, (and) holy ascetics, capable of counteracting divine calamities, should live in the kingdom, honoured by the king.” (Kangle 1969, p.264)

It is to be noted that in Hindu philosophy (Sāṃkhya, Vedānta) there is mention of three kinds of sufferings that afflict the living world, namely, *ādhyātmika*, *ādhibhautika*, and *ādhidaivika*. The *ādhyātmika* suffering is due to body or mind. The *ādhibhautika* suffering is caused due to beings like wild animals, even mosquitoes, etc. The *ādhidaivika* suffering is due to unseen forces on which humans cannot exercise any control, like unforeseen natural calamities. In all the Śānti Mantras prefixing and suffixing the various Upaniṣads, Śānti (Peace) is chanted thrice, to signify the prayer for the removal or elimination of these three kinds of sufferings, sorrows. For example, the Śānti Mantra (Peace Chant) in the Kaṭha Upaniṣad, Śānti (Peace) has been repeated thrice⁹. The mention of evil spirit in Kauṭilya’s Arthaśāstra as one of the calamities may be taken as a natural, unforeseen disaster or calamity beyond human control and hence called *ādhidaivika* suffering.

10. Other measures taken by the king in times of calamity

The king has the duty of looking after the welfare of his subjects. With this intention he decides to exempt taxes on those areas affected by famine in order to provide some relief to the people of that region in times of crisis:

परचक्राटवीग्रस्तं व्याधिदुर्भिक्षपीडितं॥०२.०१.३६॥

देशं परिहरेद्राजा व्ययक्रीडाश्च वारयेत्॥०२.०१.३६॥

paracakrāṭavīgrastaṁ vyādhidurbhikṣapīḍitaṁ॥02.01.36॥

deśaṁ pariharedrājā vyayakrīḍāśca vārayet॥02.01.36॥

“The king should exempt from taxes a region laid waste by the army of an enemy or by foresters, or afflicted by disease or famine, and he should prohibit expensive sports.” (Kangle 1969, p.58)

Further, the king is held particularly responsible for the protection of the helpless, the aged and the distressed:

बाल-वृद्ध-व्यसन्यनाथांश्च राजा विभूयात्। स्त्रियमप्रजातां प्रजातायश्च पुत्रान्॥०२.०१.२६॥

१३३ सहनाववतु। सहनौभुनक्तु। सहवीर्यंकरवावहै।

तेजस्विनावधीतमस्तु। माविद्विषावहै॥

ॐ शान्तिः शान्तिः शान्तिः॥ कठउपनिषद् शान्तिमन्त्र

om sahanāvavatu| sahanaubhunaktu| sahavīryamkaravāvahai|

tejasvināvadhītamastu| māvidviṣāvahai||

om śāntiḥ śāntiḥ śāntiḥ || kaṭhaupaniṣadśānti mantra

bāla-vṛddha-vyasanyanāthāṃśca rājā bibhṛyāt | striyamaprajātāṃ prajātāyaśca putrān ||02.01.26||

“And the king should maintain children, aged persons and persons in distress when these are helpless, as also the woman who has borne no child and the sons of one who has (when these are helpless).”(Kangle 1969, p.57)

Construction is done with precautions against fire and poison:

सर्वेषां शालाखातोदपानवच्च स्नानगृहाग्निविषत्राणमार्जारनकुलारक्षास्वदैवपूजनयुक्ताः कारयेत्॥०२.५.०६॥

sarveṣāṃ śālākhātodapānavacca snānagr̥hāgniviṣatraṇamārjāranakulārakṣāsvadaivapūjanayuktāḥ
kārayet ||02.5.06||

“And in all (structures) he should cause the halls to be provided with a ditch, a well, a latrine and a bath-room, with precautions against fire and poison, with protection by means of cats and ichneumons and with (arrangements for) worship of their respective deities.” (Kangle 1969, p.73)

The common welfare activities of the City Superintendent include:

नित्यम् उदक-स्थान-मार्ग-भ्रमच्छन्न-पथ-वप्र-प्राकार-रक्षा-अवेक्षणं नष्ट-प्रस्मृत-अपसृतानां च

रक्षणं॥०२.३६.४३॥

nityam udaka-sthāna-mārga-bhramacchanna-patha-vapra-prākāra-rakṣā-avekṣaṇaṃ naṣṭa-
prasṃṛta-apasṛtānāṃ ca rakṣaṇaṃ ||02.36.43||

“Constant inspection of places supplying water, roads, water-courses, covered paths, ramparts, parapets (and other) fortifications, and the guarding of what is lost, forgotten or has run away (are the duties of the Superintendent).” (Kangle 1969, p.188)

Conclusion

Thus we see how Kauṭilya’s instructions and words of profound wisdom to tackle, prevent and overcome disasters and calamities in the kingdom provide deep insights useful even in modern times. The kind of extensive measures recommended to be adopted and the alertness displayed by the king and administrators of the kingdom in the ancient times are truly amazing. We know that at that point of time there was not the advancement of technology (as we now understand) to get weather updates and signals of various disasters to quickly disseminate information among the general public to avert losses of life and property. Yet the indigenous knowledge and practices reveal the greater amount of acumen of the Kauṭilyan territory to ensure safety and security of its fellow beings with all necessary planning and adequate equipment and preparedness for the purpose. The indigenous knowledge coupled with scientific technology is what the world needs more in the present times. As Swami Vivekananda emphasized, what we now want is the *Prācīna Bhāratiya Jñāna Paramparā* (Ancient Indian Wisdom Tradition) coupled with modern science and technology, a harmonious blend of the best elements of the East and the West. We need to build a multi-stakeholder partnership that would link local governments, private sector, civil societies for better and effective disaster prevention and

mitigation.¹⁰ A dialogue between different stakeholders will thus help spread awareness not only about the grave consequences of the disasters but also help identifying the gap areas and suggest solutions which would otherwise trigger massive amount of losses for any country.

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