

INTERACT-BIO DIALOGUE SUMMARY: POLICY MAKERS AND RESEARCHERS

Expert consultation on the need for an urban policy on *Khazans*

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INTERACT-Bio
Integrated action on biodiversity



1. Framing the context

Goa's capital city, Panaji, is prone to flooding every year because of intense monsoons (Ministry of Urban Development and World Bank, 2015), which leads to disruption of urban services, loss of business and affects the quality of life of its citizens. Panaji has already been identified as one of the coastal cities of India, which is vulnerable to flooding due to climate-change induced sea-level rise (TERI, 2014). Sea-level rise coupled with projected future increases in short duration, high intensity rainfall and extreme events due to climate change, will lead to increased instances of inundation, waterlogging, and floods in the city. Therefore, the city needs to explore holistic climate adaptation strategies, beyond grey infrastructure that will enable a better response to climate change. One such strategy lies in its indigenous heritage. Considered to be "endemic and heritage ecosystems of Goa" (Sonak, 2014), Khazans are saline flood plains in Goa's tidal estuaries, which have been reclaimed over centuries with a complex system of bunds and sluice gates (Kamat, 2004). The reclaimed land not only protects the surrounding areas from the influence of the sea, but also provides Goans with their staple 'fish curry and rice'.

Goal 11 of the Sustainable Development Goals calls for a significant transformation of how urban spaces are constructed and managed with an emphasis on building safe and climate resilient societies while Goal 13 calls for taking action to combat climate change and its impacts. Restoring these unique ecosystems will lead to more sustainable and resilient cities within the State and will preserve the unique heritage associated with them. It will also contribute to Goal 2, by promoting sustainable agriculture, horticulture and pisciculture, to Goal 14 by sustainably cultivating and harvesting economically important marine species, indirectly to Goal 3 and 15 by improving the local ecosystem health through improved biodiversity and organic food supply.

Khazans represent a climate adaptation solution to ensure urban sustainability, however, the other side of that coin is the fact that Khazans are also extremely vulnerable to climate change as highlighted in the recent draft of the State Action Plan for Climate Change (Goa State Biodiversity Board, 2020). Sea level rise which threatens to swallow up Goa's low-lying areas also threatens the very existence of Khazans. Some of the most vulnerable populations are those who depend on these lands.

The feasibility and continued existence of Khazans rests in its structural and governance components. Although there has been a lot of attention around the governance of Khazan ecosystems of the state, it has largely been from a rural perspective. Urbanisation, a narrow approach to urban policy and planning, and lack of awareness

has resulted in the exclusion of these ecosystems. Their legitimacy and sustainability are slowly fading. The Government of Goa recognises the value of its Khazans as outlined in various plans, such as the State Agriculture Plan (2018-2020) and the State Action Plan for Climate Change (2020) and plans are underway to conduct the first of its kind Khazan land surveys. These plans have highlighted the need for more studies on Khazans and their ecosystem services, mapping vulnerable land owners, and development of an integrated plan. Locals too have called for a restoration of their Khazans to jump start economic revival post the COVID-19 pandemic lock-down.

As climate resilient infrastructure and nature-based solutions dominate the global discourse, it is unclear what the impact of urban policies, priorities and governance structures are, for these disappearing heritage ecosystems. Goa lacks a comprehensive, integrated framework for policy, planning and management of Khazans, which makes its conservation difficult. It is therefore necessary to develop a thorough understanding of the issue through an urban lens that will inform policy and support inclusive development in the backdrop of climate change.

2. Emerging themes

2.1. Defining a *Khazan* and identifying its structural and functional components

The attendees were explained the purpose of having the dialogue. Using the platform as a means to establish a situation analysis would provide multiple insights into the next steps forward.

The participants were explained how the first exercise of the workshop focussed on examining the definition of Khazans and reach a consensus on what the operational definition should be. Definitions reported in secondary literature sources such as government reports, white papers, books and research articles were projected on the screen and various descriptors of Khazans were highlighted from each definition (Figure 1). After a long discussion between the experts, everybody collectively agreed on an operational definition which has been listed below.

- “Low lying paddy fields at the side of the river or water course, with a bund to prevent inundation.” - Code of Comunidade 1961
- “Low-lying, mangrove-fringed coastal saline lands (mesohaline) drained by the tidal estuaries which have been subjected to planned and contour-integrated topo-hydro-engineering by the local communities to produce reasonably sustainable productive agro-ecological & agro-economic systems” - Kamat, 1999
- “Saline flood plains that lie below sea level at high tide” - Goa State Biodiversity Strategy and Action Plan 2002
- “lands (Khazans) recovered by reclamation from marshes and the tidal waters with the help of bunds (embankments)” - Mukhopadhyay, 2002
- “True Khazan lands are carefully designed as topo-hydro-engineered agro-aquacultural ecosystems” - Kamat 2004
- “Khazans are community managed, integrated agro-aqua ecosystems. These are mangrove areas, reclaimed using a system of dykes, canals, and gates” - Sonak et al, 2005
- “Khazans are predominantly rice and fish fields. They are reclaimed wetlands, salt marshes and mangrove areas, where tidal influence is regulated by the construction of embankments and sluice gates” - Sonak 2014
- “Khazans are saline flood plains of Goa’s tidal estuaries (below sea level at high tide), which have been reclaimed over centuries with an intricate system of bunds (dykes) & sluice gates” - State Agriculture Infrastructure Development Plan (SAIDP) FOR GOA, 2018
- “Coastal land that has been reclaimed from the inundation of the tidal waters by constructing embankments” - Goa State Action Plan on Climate Change 2020
- “Reclaimed Estuarine Lands serving as rice bowls of Goa” - Draft Khazan Land Management Plan 2021

Definition Outcome: “Khazan is a low-lying, saline, reclaimed/flood plain, below river/sea level, protected by a bund, surrounded by mangroves, rich in biodiversity suitable for agriculture and aquaculture”. Participants were then asked to rate a compiled list of structural elements of Khazans according to their relevance using a five-point Likert Scale, i.e., (1) not at all important; (2) rather unimportant (3) not important and not unimportant (4) rather important; (5) very important. Overall, most components i.e., Outer Mangroves, Outer Embankments, Inner Embankments, Agricultural Fields, Poiem, Sluice Gates scored high.

According to Dr. Suresh Kunkalikar, Principal, Don Bosco School of Agriculture, within the Khazan system, the outer embankment/bund is very important structure along with other components like fields, aquaculture, salt pans, poiem. The outer bund is defined by a waterbody/river outside protecting the fields from inundation of salt water and contains fringing mangroves. Traditionally the bunds were not broad. The width of the outer



Figure 1: List of Khazan definitions presented to participants

bund earlier was 2.5m where people/farmers were able to use them to take bullock carts for transportation of crop yield. Now the width of the outer bunds in some Khazans are 10m and inner bunds are 4-7m. Dr. Pradeep Sarmokadam, Member Secretary, Goa State Biodiversity Board, too, discussed what the dimensions of the bunds were from his experience. It is important to define the width of bund since many real-estate/construction companies are trying to encroach and grab the Khazan lands by increasing the dimensions of these bunds. The Biodiversity Management Committee (BMC) should devise proper guidelines of the same. He stated that it was important to conserve the traditional Khazan social systems. Traditionally the components of system were maintained by people who have specific surnames derived from what they maintained. For example, the people who used to maintain bunds are called Bandkars. Bunds were used for cultivation of vegetable crops and coconuts. Traditional bunds built of mud get breached due to damage caused by crabs and so needs regular monitoring and proper management. There is a threat due to increase in river depth because of sand mining and mining barges which travel at high-speed causing erosion of the bunds. The wave action from these boats and speed boats too can increase damage to the outer embankment. Hence according to Dr. Pradeep Sarmokadam, Dr. Suresh Kunkalikar, Mr. Mario Braganza, a farmer, the bund depth also should be taken into consideration. Outer bunds must not be concretised (which is presently taking place) and has to be built using traditional materials as it holds lot of vegetation (mangroves, coconuts, bheni trees etc) which supports and protect the bund according to Prof. Ramrao Wagh, Principal, Goa College of Theatre Art. He further stated that along with protecting and maintaining Khazan components, the agriculture, pisciculture, salt pans/farming has to be maintained and continue so the purpose of Khazan system is maintained since other/invasive species will occupy the area destroying the relevance of Khazan ecosystem. According to Dr. Sarmokadam, the Goa State Biodiversity Board (GSBB) has constituted a green scaling committee for restoring bunds. Trial experimentation of restoration is being conducted in association with village BMCs. Villages with strong BMC support are taken on priority. The people who have experience in traditional bund making are given jobs and job cards under the MNREGA programme.

The participants were asked to classify the types of Khazans present in Tiswadi from the list below:

1. Integrated Khazan ecosystems involving Agriculture and Aquaculture
2. Salt pans
3. Fish farms or Agor or Khani

Everybody agreed that the main type of Khazans present in Tiswadi Taluk were the Integrated Khazans. Mr. Mario Braganza added that salt farms too are present which are used as fish farms from the month of June to December as salt farming is not possible during that time.

2.2. Mangrove protection laws hurt Khazans

Prof. Ramrao Wagh and Dr. Suresh Kunkalikar stated that mangroves are a contentious issue and one that needs urgent addressal. The Forest Conservation Act is used by the Forest Department to ensure that mangroves are protected. This leads to issues of maintenance of Khazan land that has been overrun by mangroves due to disuse.

Farmers are penalized by the Forest Department for removing those mangroves growing within the Khazan system i.e. on the inner side of the outer bund. In fact, several Khazan lands are now non-functional because they are overrun with mangroves due to breaches in the outer bunds leading to excess salinization. Farmers view these mangroves as weeds and with great hostility. The mangroves present on outer embankments are considered important as their roots hold the soil together, they protect the bund from the pressure of the current and do not allow soil borers like crabs and mud skippers to dig holes in the bunds.

2.3. The role of the real estate industry and a faulty tenancy law

Prof. Ramrao Wagh, Mr. Mario Braganza stated that presently some Khazans are under the comunidade, some are managed by the tenant associations, some have been converted into private land, purchased by tenants, and several have been taken over by the government and converted into public land. Details of ownership of Khazans are available with the Talathi in the Panchayat and Mamlatdar office according to Prof. Ramrao Wagh and Ms. Elsa Fernandes, Environmental Architect, Government Polytechnic, Panaji.

There has been a change in the area occupied by Khazans in Tiswadi taluka over the past few decades. The main reason behind the change is construction and the real estate industry. Prof. Ramrao Wagh stated that Khazans are owned by the Comunidade which are now mostly defunct. Before the Comunidade there was a Gaunkari system. Gaunkar or Comunidade gives fund to tenant association to maintain the area. Khazans are entirely community owned via the Comunidade by rule, and one cannot sell/purchased land to private people

or anyone from outside. According to Mr. Mario Braganza, the ownership revolves within the village strictly for cultivation purpose. In 1973, through the agricultural tenancy act, control was given to Mamlatdar. Presently the system is disintegrating, with the Mamlatdar and tenant association focussing more on profits accrued from auctioning the sluice gates (manas) for fishing. Private owner/ companies /real-estate owners/builders interfere with governance and ownership of the land. The rest of the Khazans which were cultivated for rice are ignored and left unmanaged. The system of inheritance among tenants is also affected. There are many tenants for one Khazan area, but over a period of time, several of them left Goa or died. Their children are having now having issues regarding their claim to Khazans as tenants and have to go through a complex bureaucratic process to establish their identity. According to Prof. Ramrao Wagh, to reclaim their tenancy, one needs to file a tenancy case in court. In a few villages the tenant association contains only 5-6 members who decides the functioning of group and management of the land. Due to issues with succession, the tenants' association cannot be regulated as descendants of the original tenants do not have automatic voting rights, impeding election processes in the tenant's association.

2.4. Governance, regulatory and planning instruments at work in Khazans

Participants were asked to specify the instruments at work in Khazans of Panjim, Taleigao and St Cruz. Governance, regulatory and planning instruments were listed from the secondary literature and participants were asked to individually indicate whether these were present or absent. A group discussion was then carried out and following questions were asked to understand working of the governance mechanism and involvement of the stakeholders in Khazan management

Please describe whether the stakeholders benefitting from or threatening ecosystem services in Khazans in Panaji, Taleigao and St. Cruz have the possibility to participate in the identified governance instruments? The aim of this question was to identify the stakeholders potentially missing from the governance instruments, and the coverage of the governance mechanisms in terms of participation.

According to participants, stakeholders are allowed to participate in governance instruments. They do participate but their inputs are not considered and their objections are ignored. The process is not participatory all the time.

According to Ms. Tallulah D'silva, Founder and Principal Architect at architecture t in a recent Gram Sabha at Taleigao though the stakeholders participated and their points were considered. However these suggestions are yet to be implemented. The absence of a formal public participation process, followed by implementation of the suggestions are issues that need to be addressed on priority basis.

Please describe how the stakeholders perceive existing governance mechanisms? Are there any critical public discussions on that, other criticisms or rumours indicating lack of transparency, or of compliance with the existing rules. Or, are the stakeholders happy with the governance instruments?

The general consensus was that stakeholders are not happy with the existing governance instruments due to lack of transparency, no public participation and lack of accountability. Influential lobbies are formed whose opinions are manifested in governance instruments. There are rarely any governance instruments at work. The governance structure lacks sufficient norms and regulations. There is no robust monitoring and evaluation mechanism in place to check the work that has been carried out, against the finances that have been invested for the same. There are certain clauses in the Agricultural Tenancy Act that allow the Mamlatdar to overrule tenants, the tenant's association or the comunidade. Lack of strict enforcement mechanism also leads to slow encroachment of bunds, after which landfilling takes place followed by land conversion and finally building construction. The biggest issue is that the stakeholder tenants do not have their names in the updated tenant association list due to obstacles in the inheritance process. This impacts a transparent governance process as the members of the tenant's association cannot be held accountable. When a majority of tenants have a say in electing the tenant's association members, some transparency and pressure will come into the system.

Describe what/which existing governance instruments specially match or mismatch with ecological features of Khazan?

The CRZ rules themselves are in direct opposition with Khazans. In latest CRZ rules there was an issue with the delineation of the high tide line which was shown as from sluice gates. This resulted in a number of anomalies such as inhabited areas of villages being outside the high-tide line since most of the sluice gates are in the interior part of the village. After several protests the high tide line is going to be revised at the level of the outer

bund. The CRZ guidelines permit the use of sensitive areas under the CZMP for waste management facilities, which has resulted in several Khazans being used for establishment of waste treatment plants. The Building Rules allow construction debris to be disposed of in Khazan lands. For example, on the Mercedes bypass road, construction debris has been dumped on what was earlier Khazan land and a public park created.

2.5. How can ICLEI facilitate the various entire action points described above?

Khazan lands are found in the estuarine basins of Tiracol, Chapora, Baga, Mandovi-Zuari complex, along Cumbarjua canal, Sal, Talpona and Galjibaga Rivers. Eight of the 11 talukas (subdistricts) in Goa had a total area of 17,500 ha under Khazans (Directorate of Agriculture. 2018), of which there is an estimated loss of about 4,000 ha over the last thirty years (Kamat, 2004). A significant portion of this 4000 ha is from around urban areas such as Panaji, Mapusa, Margao, Calangute, Candolim. An up-to-date map and accurate estimation of the area under Khazans does not exist. ICLEI South Asia can support the development of this for Panaji and its surroundings. A time series analysis of the landuse landcover dynamics of Khazans in Panaji and its surroundings over a period of two decades through a combination of GIS based mapping and remote sensing will also help to understand the present and past extent of Khazans.

Several factors have contributed to the decline of Khazans. Khazans in proximity to urban areas have been reclaimed at the expense of urban expansion. Mapusa highway, the Kadamba bus stand and many high-rise buildings in Panaji have been constructed on reclaimed Khazan lands. These productive ecosystems have also been converted into play grounds, storage yards, exhibition grounds and parking places without assessing their productive potential and the ecological impact. Land conversion and urbanisation have resulted in slums encroaching on acquired comunidade lands (Raposo, 2010). From an urban governance perspective, land and resource conflicts over growth infrastructure and urbanisation around Khazans have been largely neglected. A detailed study on the ownership of Khazans by accessing archival records of land ownership data can also be supported by ICLEI South Asia. In addition, mapping of site specific threats to Khazans will also support to conserve the same.

Finally, to support better governance of urban Khazans, a strategy and action plan for urban Khazan management which will have scope for replication in other coastal urban areas in the region, can be developed with support from ICLEI South Asia.



3. Post-2020 Global Biodiversity Framework implications

Going forward, the dialogue and the points raised can be viewed through the Post-2020 lens, specifically in point 5 of ICLEI's 10 Point Framework, which promotes the creation of an enabling environment that supports the mainstreaming of the multiple social and health benefits of nature at the local and subnational levels to improve the quality of life and resilience of communities, enhance social cohesion and lead to financial benefits and savings for both individuals and governments. In addition, Point 3 promotes the creation of an enabling environment for significantly increased private sector investment and development aid in nature-based solutions at local and subnational levels, as they are closer to the mainstreaming sectors and best positioned to build and sustain functional and resilient ecosystems and urban-rural linkages. In this regard, both points highlight the necessity for the issues raised in this dialogue to be addressed, as their resolution can prove to be hugely beneficial to India and the Post-2020 agenda.

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INTERACT-Bio project at a glance

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