

UNDERSTANDING THE DYNAMICS OF AQUATIC BODIES

RAINWATER HARVESTING PONDS
AT AIRPORTS



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AQUATIC BODIES

Aquatic bodies outside the airport

Aquatic bodies inside the airport

Used to be a rare occurrence earlier

Usually small ponds dug up for runway extension

Airports now intend to harvest water for self-reliance

Obligation to create large water bodies or Rainwater Harvesting Ponds has arisen

How Large Rainwater Ponds should be managed at the airports?



AQUATIC BODIES

Attract waterfowl and other birds

Surface feeders - Waterhen and Jacana

Dive feeders - Ducks, Cormorants and Darters

Shore feeders - Herons, Egrets and Ibises

Aerial hunters - Kingfisher, Swallows and Brahminy Kites

Giant fruit bats drink water

A source of dragonflies and mosquitoes

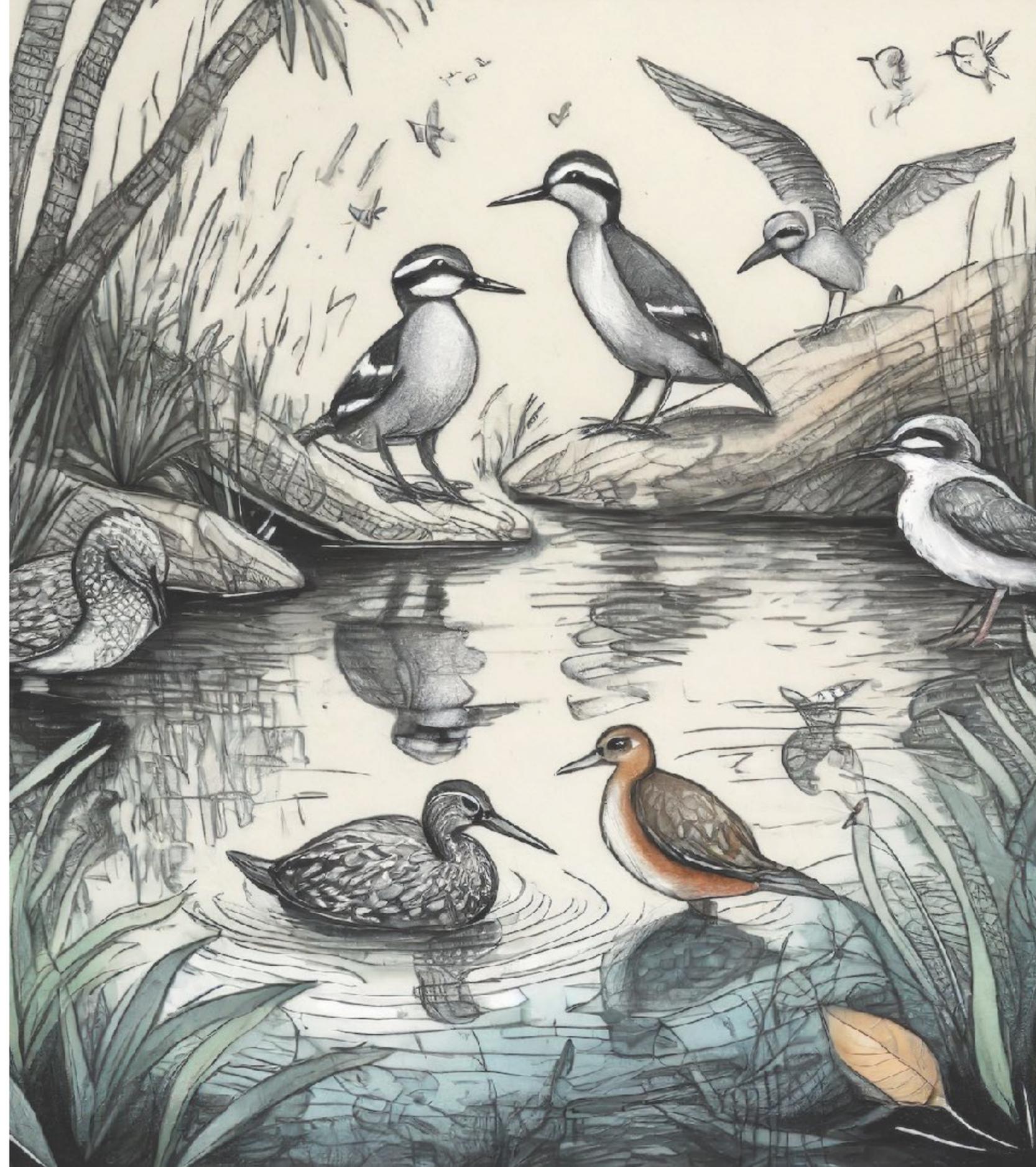
Dragonflies attract Black kites

Mosquitoes attract *Pipistrelle* bats

Zoochory

Exotic organisms in your ponds

Introduction of pond weeds and fish



4 THUMB RULES

Water accumulation in the airports for 4 h attracts birds

The aquatic bodies would hold the water for many months in a year

Hence they become attractive to birds

There are four thumb rules how to reduce the attraction to the birds



RULE OF PROXIMITY

If a waterbody is less than or equal to 2.01 km from each other birds feel contiguity

The results will be 'catastrophic' attraction

However, if the distance is increased to 8 km, then the risk reduces to 'negligible'

Such distances may not be possible to maintain



APPARENT SLOPE TO THE WATER'S EDGE

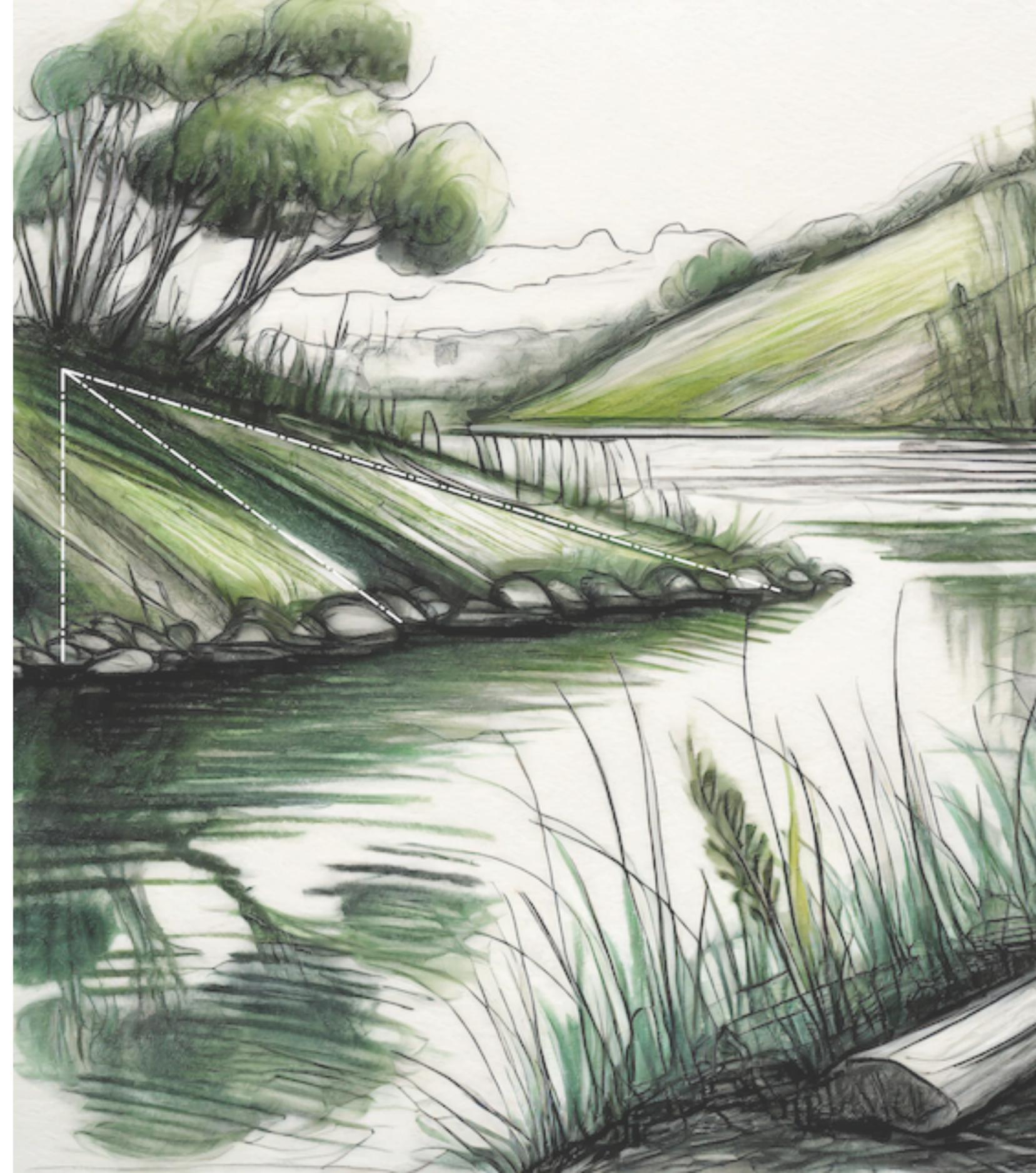
The 1:5 Ratio is catastrophic

The gentler slopes attract more birds

The 1:1 Ratio has a negligible attraction

The harsher the slope birds find unattractive

Stone pitching versus mud bank



IRREGULARITY OF THE WATERBODY

More irregular shape attracts more birds

Perfect geometric shapes attract less birds



VEGETATION COVERAGE IN POND

If the pond is covered with

100% Vegetation = very low risk

0% Vegetation = low risk

<16.5 or >83% = medium risk

16.5 to 32.9% OR 66.1 to 83% = high risk

33 to 66% = very high risk



MANAGEMENT OF RAINWATER HARVESTING PONDS

Habitat Fragmenters

Insect management using Black Light Traps

Vegetation management using Carp

Indigenous Bioacoustics

Trained BASHM team to monitor

Chlorination to kill insects

Anti Perch Devices on the structures



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DISCUSSION

