A presentation by Gilles, Gilles & Christian on behalf of Water Cell, l'Avenir d'Auroville

TOWARDS A WATER POLICY FOR AUROVILLE

TOWN PLANNING ISSUES IN RELATION TO SURFACE WATER MANAGEMENT:

DECISIONS TO TAKE NOW

It is time to make choices !

- Will Auroville favour a multi sourcing policy for its water resources?
- Will storm water / run off / surface water be considered as a core resource?
- Can Matrimandir Lake be a major part of the Auroville water system?
- How to move forward with the integration of planning and development issues?

Outline of the presentation

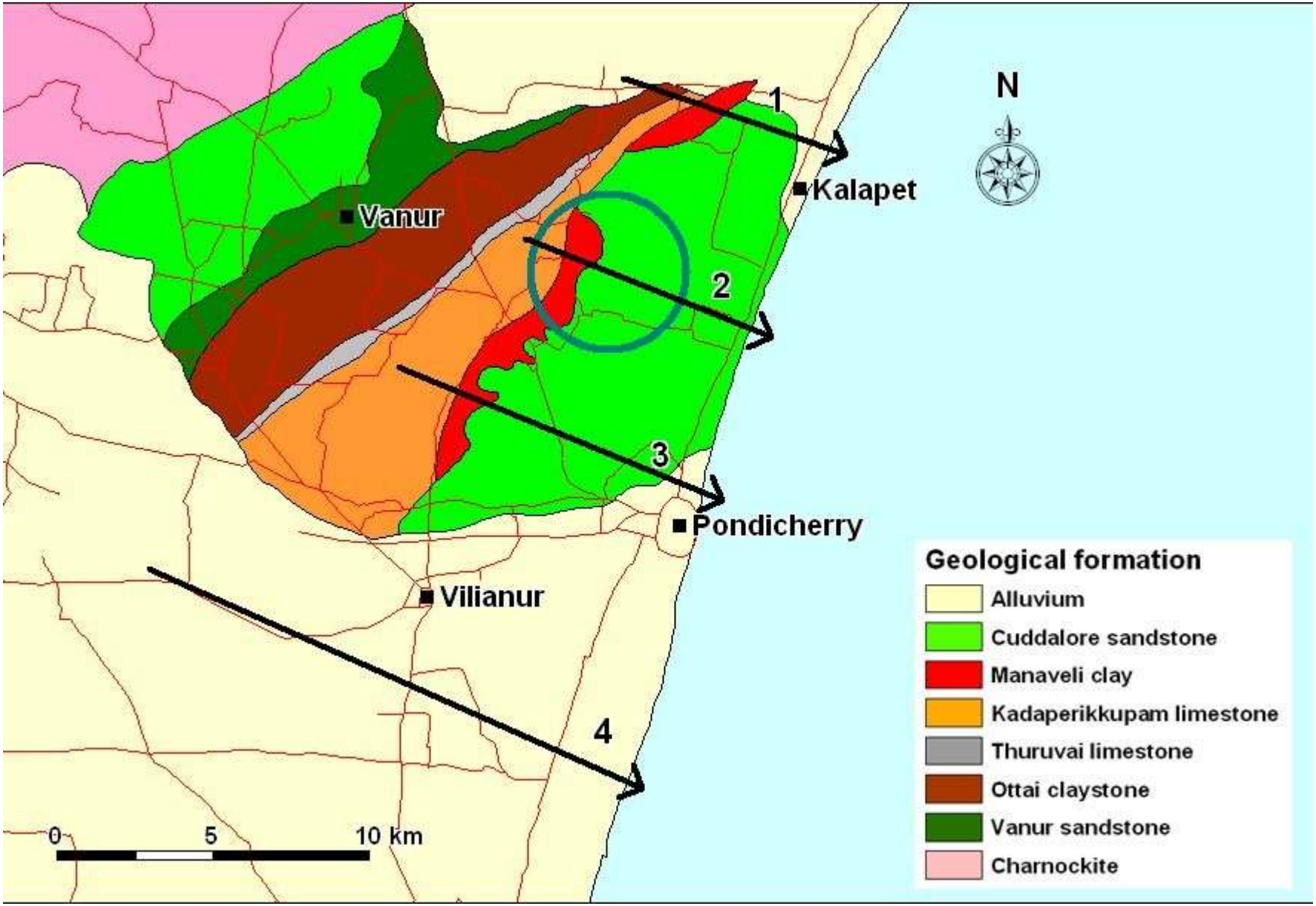
1. The water situation in Auroville at present
2. Can we afford to develop
   along the same lines?
3. What could be the alternatives?
4. Recommendations
   (towards a Water Policy)
5. Proposal: launch studies
   & consult all stakeholders

1. The water in Auroville so far

1. The water in Auroville so far - 1/2

- Since the beginning of Auroville, our water supply has been developed exclusively on groundwater; as our neighbours do, we tap into all the 5 available aquifers
- Today, water supply is satisfactory, quality and quantity wise
- We have created significant assets in the area of water harvesting, recharge, wells and have good knowledge of the system

1. The water in Auroville so far - 2/2



2 - Can we afford to develop along the same lines?

2 - Can we afford to develop along the same lines? - 1/3

NO! For several reasons ...

- Water requirements will increase with the population growth: factor 10 in 15-20 years
- Auroville recharges mainly the upper aquifer: Cuddalore aquifer …
  - Which is leaking into below aquifers … and getting dry during summer in several places
  - is overexploited regionally
  - is already intruded by seawater along the coast

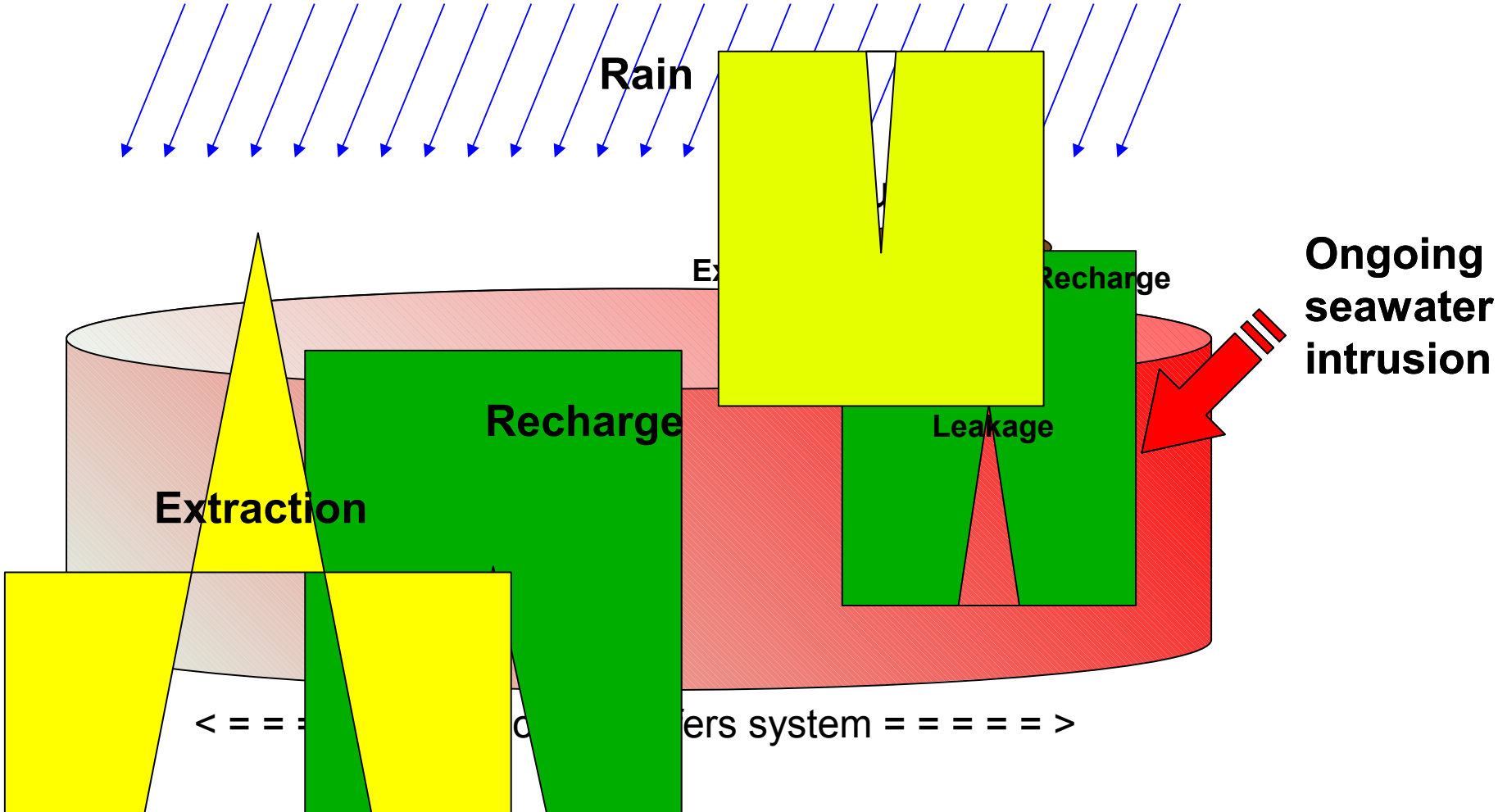
2 - Can we afford to develop along the same lines? - 2/3

- therefore Cuddalore aquifer cannot meet our needs → we must rely on the regional system, as we do already today
- BUT...
  - All aquifers are overexploited
  - The main regional aquifer, Vanur aquifer, has gone down by more than 50m in 25 years and is below sea level: seawater intrusion may occur at any time, which would totally ruin the regional water resource

2 - Can we afford to develop along the same lines? – 3/3

- AND... at the regional level, Auroville “weight” is not more than 1% of the aquifer system
- SO... our best efforts to conserve and recharge can not counteract the regional agricultural practices which generate a deficit of more than 200Mm3/yr (compared to our need = ~1Mm3/yr!)

→ We are closely dependent on a system of aquifers, which is nearing collapse
and therefore cannot secure our future



3. What are the alternatives?

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1/3 - Desalination:

- Theoretically unlimited resource
- But cannot be generalized because it is too costly, maintenance and energy-intensive
- Could/should be part of our multi sourcing strategy, as an additional resource, for safety reasons

Note: If implemented, it is easier and cheaper to desalinate brackish groundwater instead of seawater

3. What are the alternatives?

2/3 - Wastewater recycling

- Being a secondary product, it can only represent a fraction of our needs
- To treat wastewater up to drinking quality is a difficult choice to take (acceptability, contamination risk, investment...)
- But aimed at non "hygienic" purposes, must **certainly** be a part of our resource options, because it would massively reduce the demand for “fresh” water (**up to 70%!**)

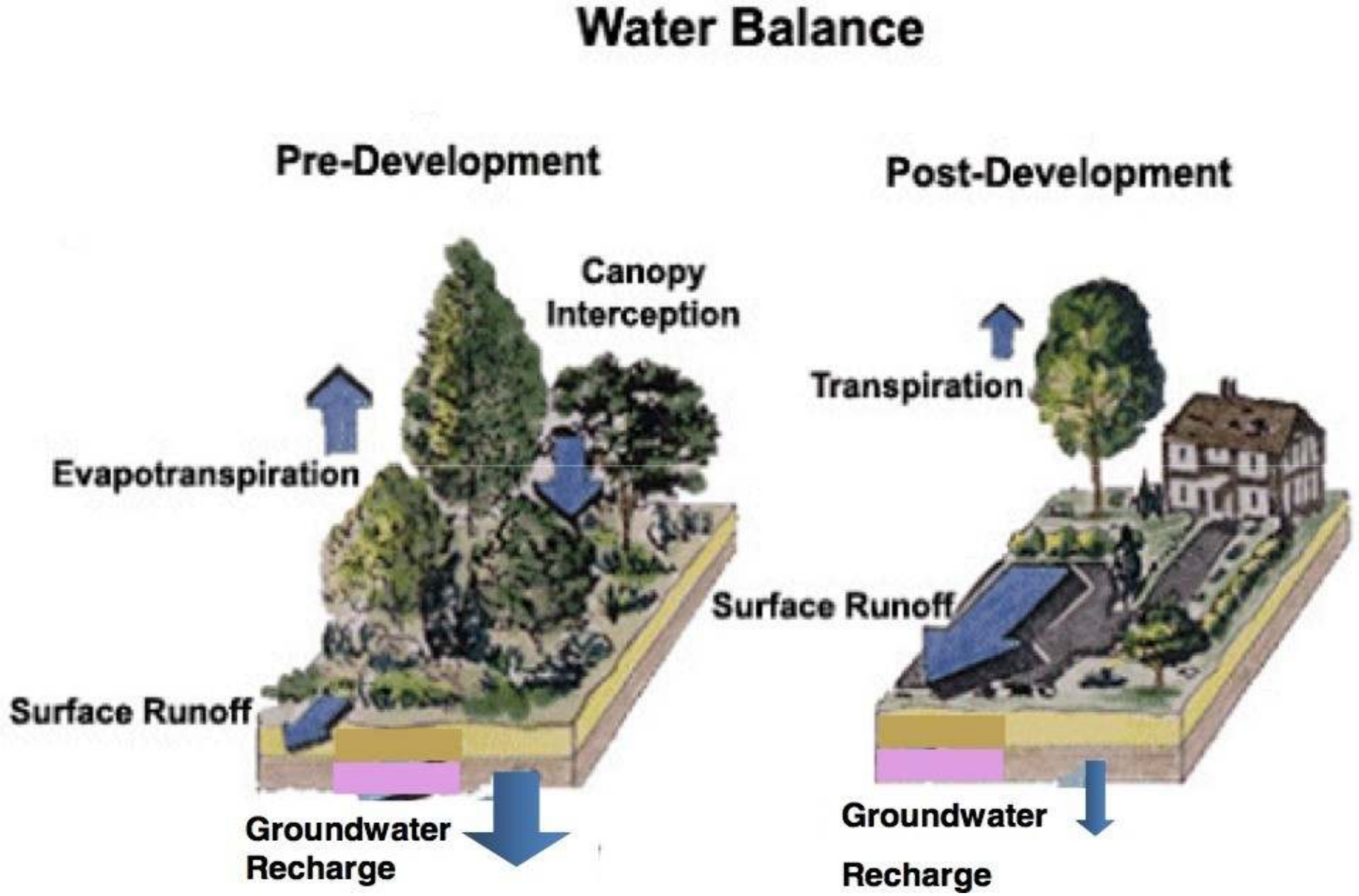
3. What are the alternatives?

3/3 - harvesting and treatment of storm water

- Rain is abundant (6Mm3/yr on city's area, 24Mm3/yr including the Greenbelt)
- A substantial part of it (today, ~15%) becomes runoff which is lost for Auroville
- Once the runoff is collected and stored, treatment of storm water is relatively simple

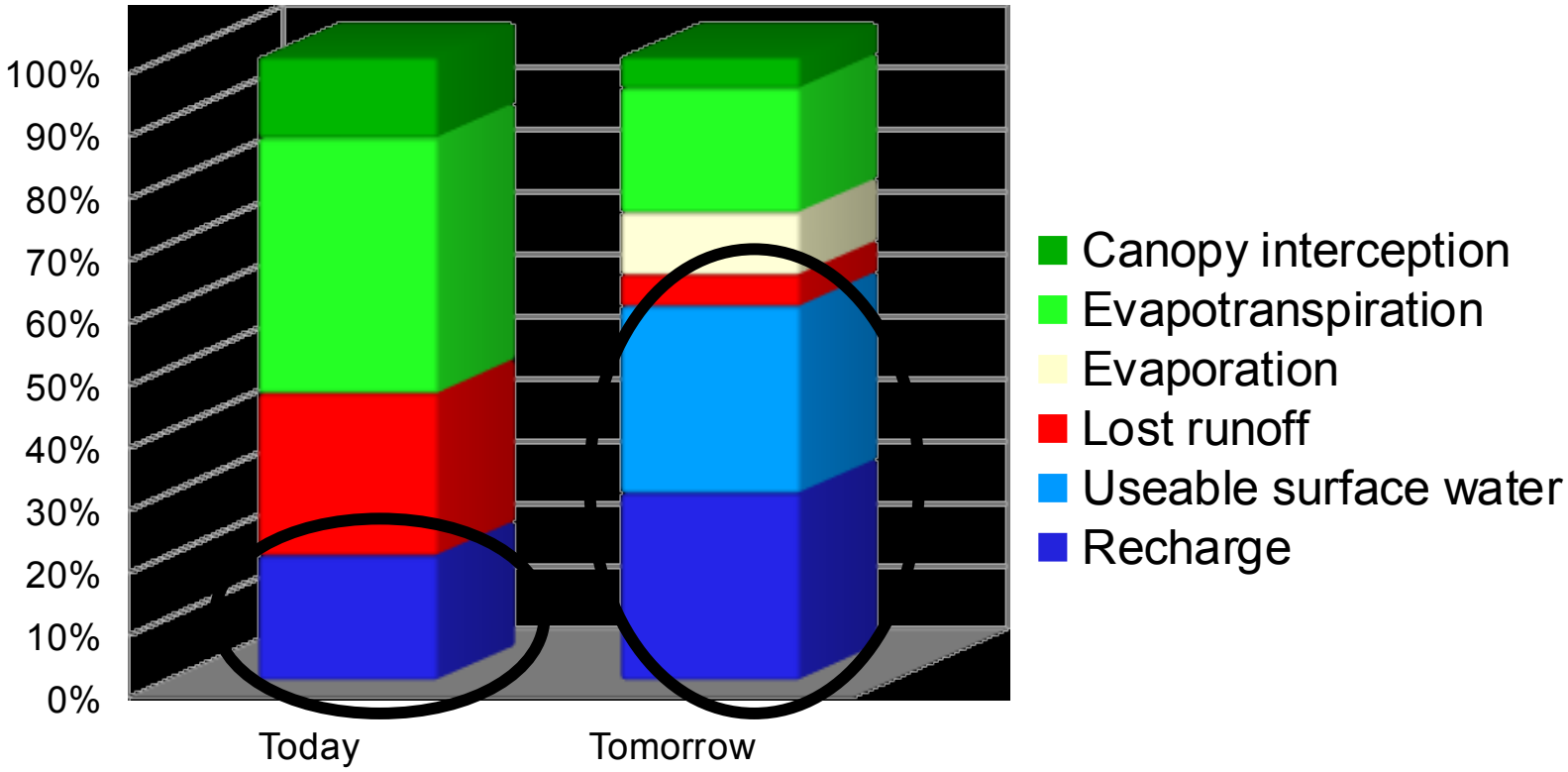
Note: this "lost water" is already of the same magnitude today as our future needs (~1Mm3/yr)

3. What are the alternatives?



3. What are the alternatives?

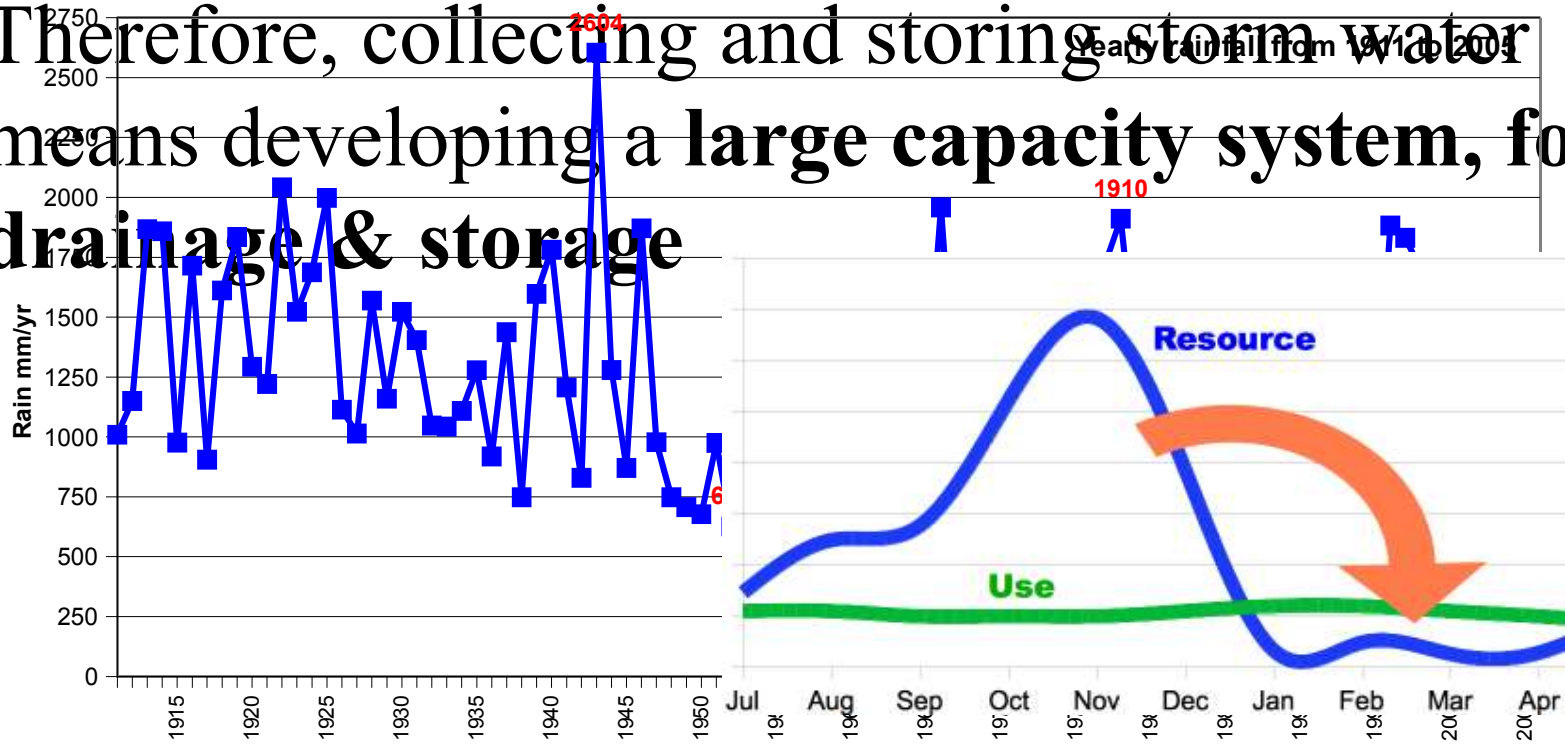
If we respect sustainable design criteria while managing surface water at city level, more water would become available, including a better recharge!



3. What are the alternatives?

3/3 - harvesting and treatment of storm water

- But rain is unevenly distributed along the time, whereas supply must be ensured continuously
- Therefore, collecting and storing storm water means developing a **large capacity system, for drainage & storage**



About the Matrimandir Lake

- As large storage is needed...
- AND as it can be sustainably filled by natural drainage...
- Matrimandir Lake could play a key role in such a system...
- In compliance with Mother's and Roger's indications

4. Recommendations (towards a Water Policy)

4. Recommendations (towards a Water Policy 1/3)

As our current groundwater resource is fragile...

- **To secure the resources by moving towards a multi-sourcing supply system** including...

- To improve groundwater recharge at our scale
- To create a comprehensive storm water harvesting and treatment system, possibly with the Matrimandir lake as main storage
- To develop advanced recycling practices for wastewater
- To remain open to desalination ...

4. Recommendations (towards a Water Policy 2/3)

Because potential impacts and opportunities are massive...

- **To integrate the surface water system as a core issue for town planning and urban design**

- To play with natural topography
- To optimise earth movements...
- To shape our urban design and create beauty by bringing living water in the city

4. Recommendations (towards a Water Policy 3/3)

Because Auroville should be "the City the Earth needs"... and because it is necessary to obtain the large financial support such a project requires...

- **To place sustainability and replicability as key design criteria**

- Environmentally → ecological sound, use of topography, following natural processes, efficiency of resources
- Socially → fair sharing of the water, replicability...
- Technically → simplicity and low maintenance...
- Economically → positive added value in comparison to the level of investment & running cost

5. Proposal: launch studies & consult all stakeholders

Short/mid term risk of water shortage

Urgent need of an integrated design for surface water in the City

Necessity for sustainability & replicability

- **Launch an ambitious program of studies...**

& develop self governance by stakeholder consultation (orientation, information and validation)...

on integrated surface water management, including the role of Matrimandir Lake

Thank you for your attention

Thank you for a sustainable future

Questions ?