

# **Environmental Sustainability in Indian Housing**



*The future is back! Architecture, which has been a bit out of focus lately, is once again alert. Sustainability came to the rescue, setting goals, objectives, tasks and challenges. And the new 'paradigm' is readily absorbed. Architects can save the world again! They advertise their 'sustainable practice' and 'ecological design'. Schools offer master courses in sustainable design, while the building industry provides sustainable solutions and governments compete in a contest of sustainability politics. Sustainability has become a politically correct term, a label that makes whatever you want to do acceptable and good. No questions asked and no doubt involved.*

(Oosterman 2008, 2)

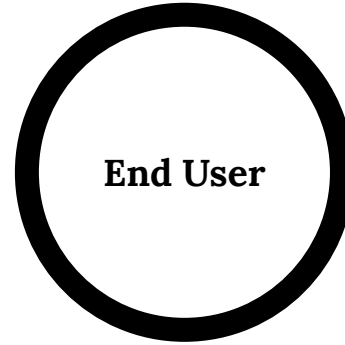
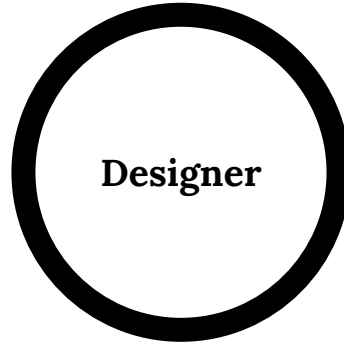
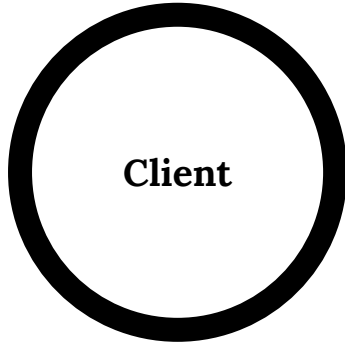


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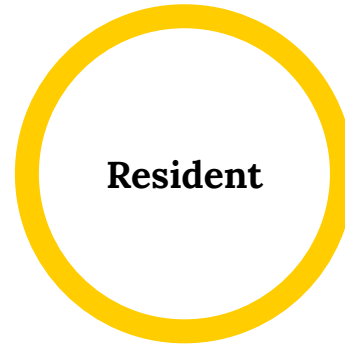
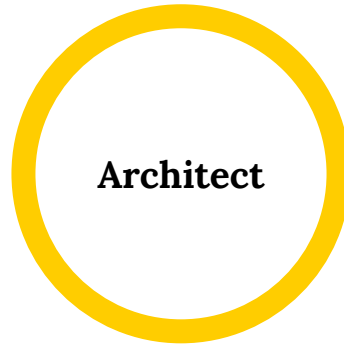


# Stakeholders when a building is built

Projects



Housing





## What is your role?

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### Developer

A developer is typically an individual or entity responsible for financing and overseeing a project.

### Architect

An individual or entity who design buildings and structures that are not only aesthetically pleasing but also functional, safe, and in compliance with relevant codes and regulations.

### Resident

A resident typically refers to an individual or family who will eventually live in one of the housing units once the construction project is complete.

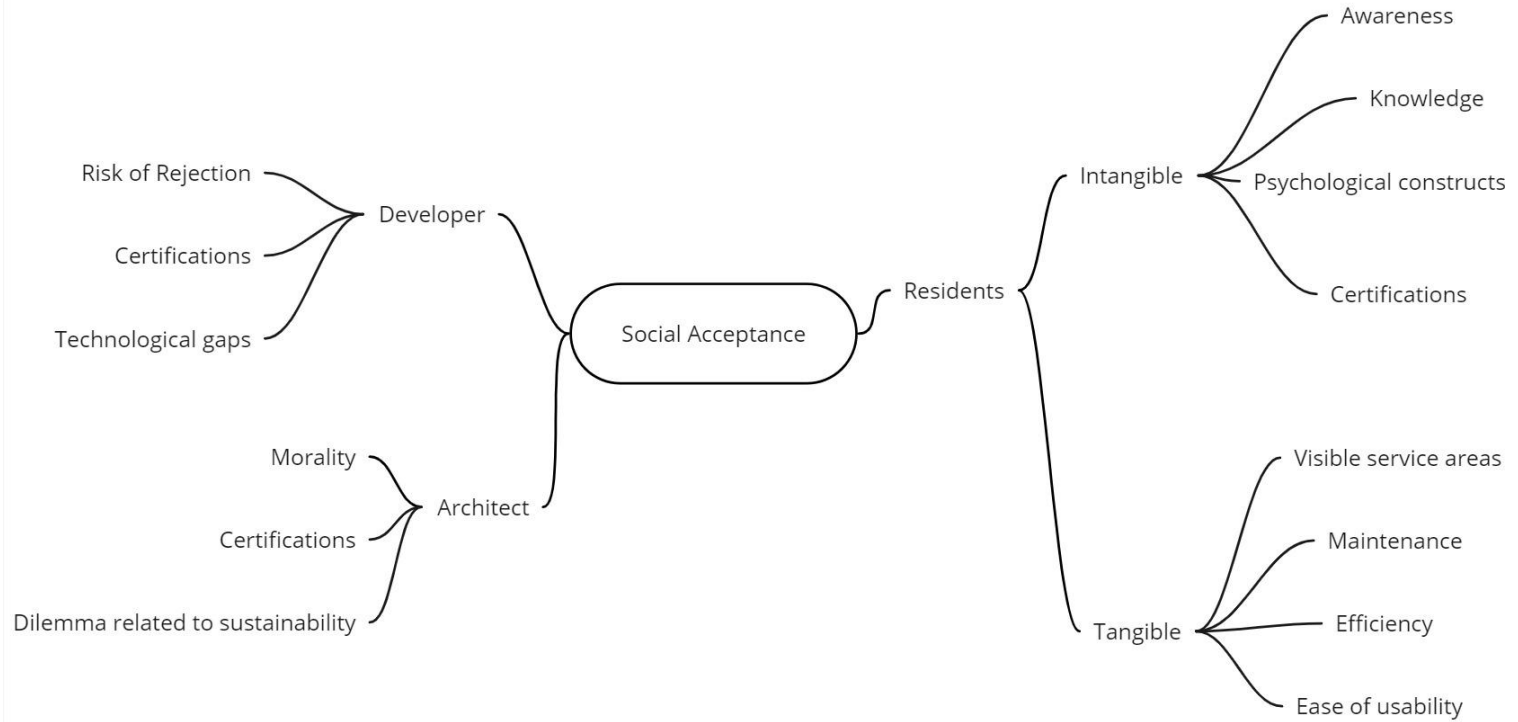
If I have bought a house Omaxe Height in Lucknow. Omaxe Construction is the Developer, CP Kukreja is the Architect and I am the resident or end user.

# Environmental Sustainability

## Economic Viability

## Social Acceptance





Hey, how is your housing project different from others?  
Developer:



Infinity pool  
huge balconies and terraces  
Walk-in wardrobes



IGBC rated platinum  
Sustainable project  
Ecological balance and green  
terraces

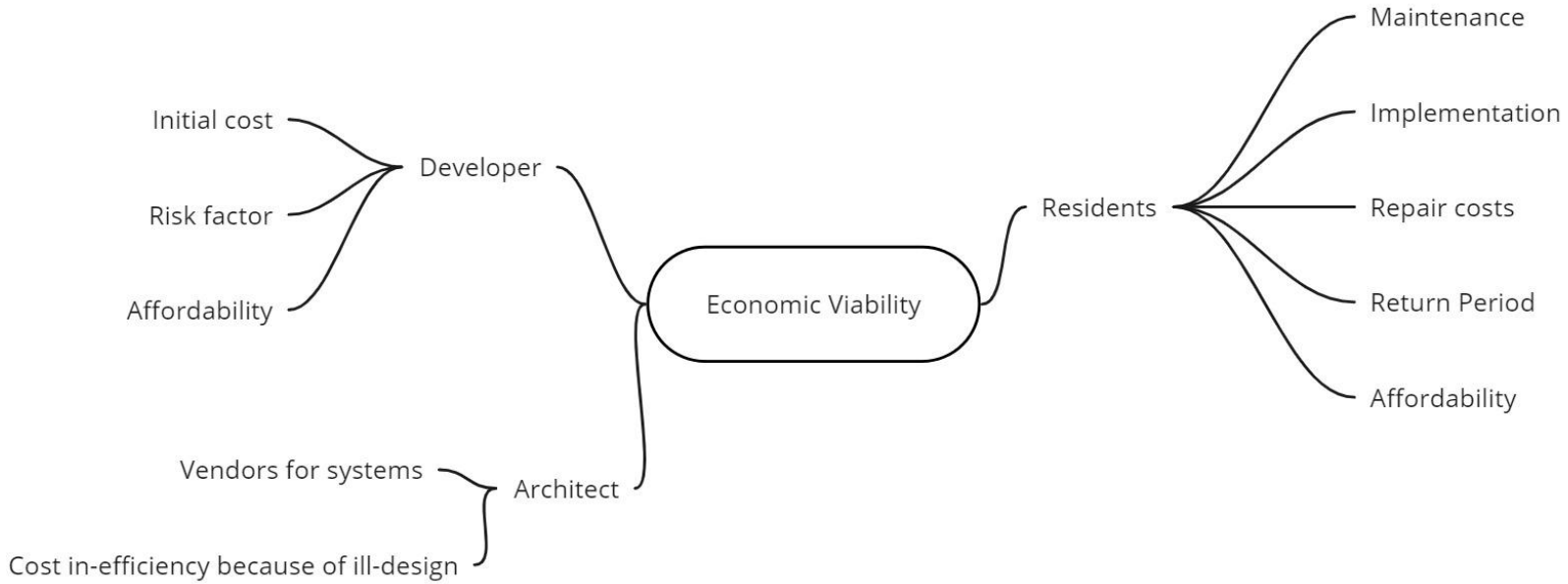


The Architect



While the Resident:



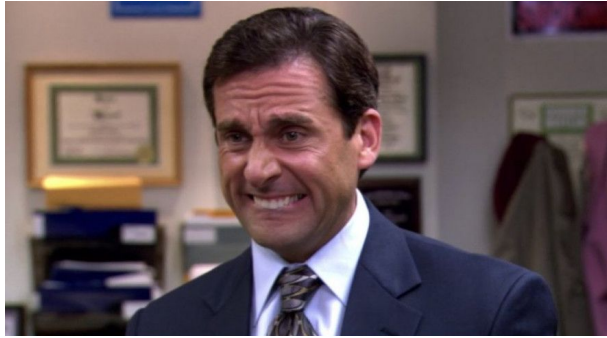


# ₹40,000-70,000/kWh

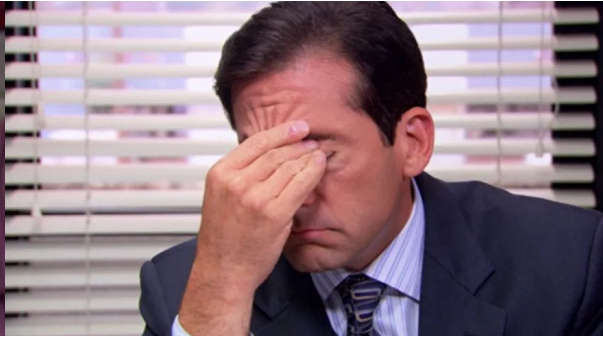
Is the price for installing Solar Panels in a housing complex of 50 units in India

And we produce around 1,00,000-3,00,000 kWh per year





Developer



Resident



Architect



## Types of certifications

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- IGBC- Indian Green Building Council
- GRIHA-Green Rating for Integrated Habitat Assessment
- LEED- Leadership in Energy and Environmental Design
- ECBE- Energy Conservation Building Code



## Yes/No/Maybe

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**Developer**

**Would  
you build  
this?**

**Architect**

**Would  
you  
design  
this?**

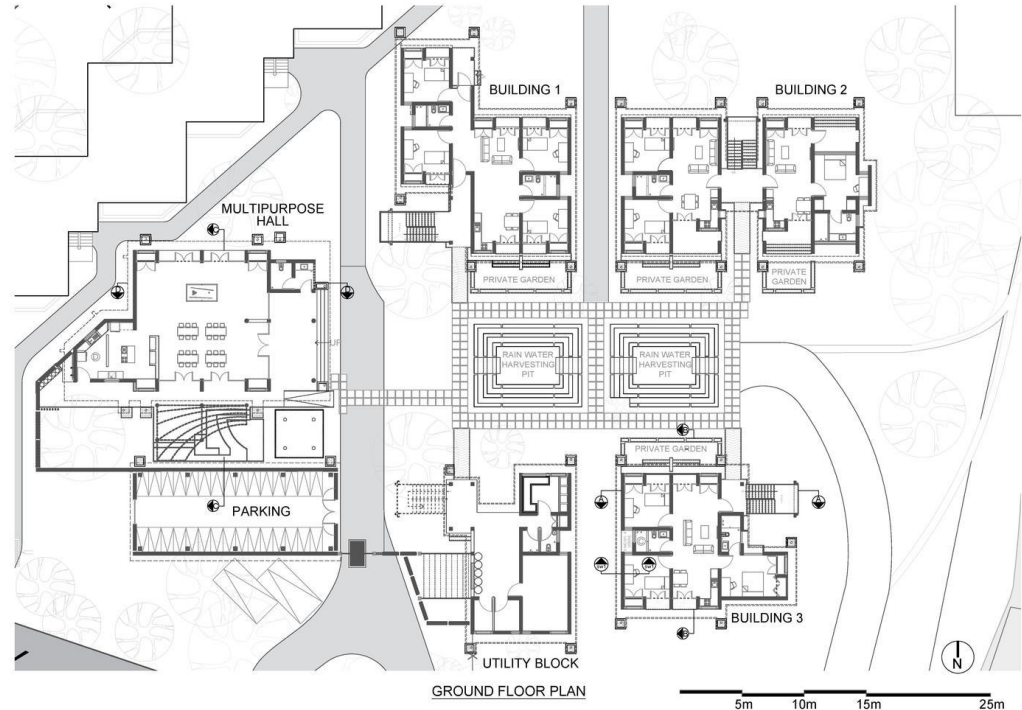
**Resident**

**Would  
you buy  
this?**



# Humanscape, Auroville

- Architects: Suhasini Ayer and Auroville Design Consultants
- Area: 1800 sq m
- Not certified
- Sustainable and Integrated Urban Living Project
- Mixed use development
- Use of passive techniques and technologies













## What do you think?

### Developer

Awards and recognition in auroville

Higher profits for the context but some residents might question the lack of certification

You would have to pay 15% more construction cost without any certification from agencies

### Architect

Aligns ideology with the larger goal or idea of auroville.

Introduction into the design community of auroville

Awards and addition to portfolio

Moral fulfilment of responsibility towards the society

### Resident

A higher price of 10% to pay for a non-certified sustainable building on the word of the developer and architect

4bhk and no attached bathrooms

A lot of shared amenities and spaces between the community

Maintenance charges and agency for the system used

Would need to be educated and aware about the possible problems related to that system

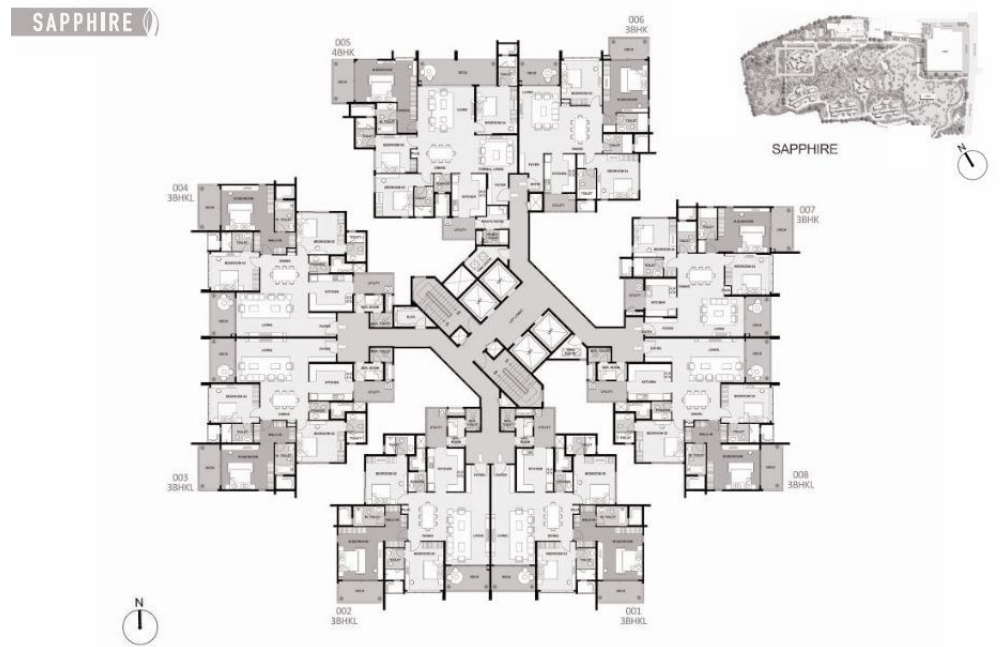
Raise your flag!

Would you build/design/purchase this project?



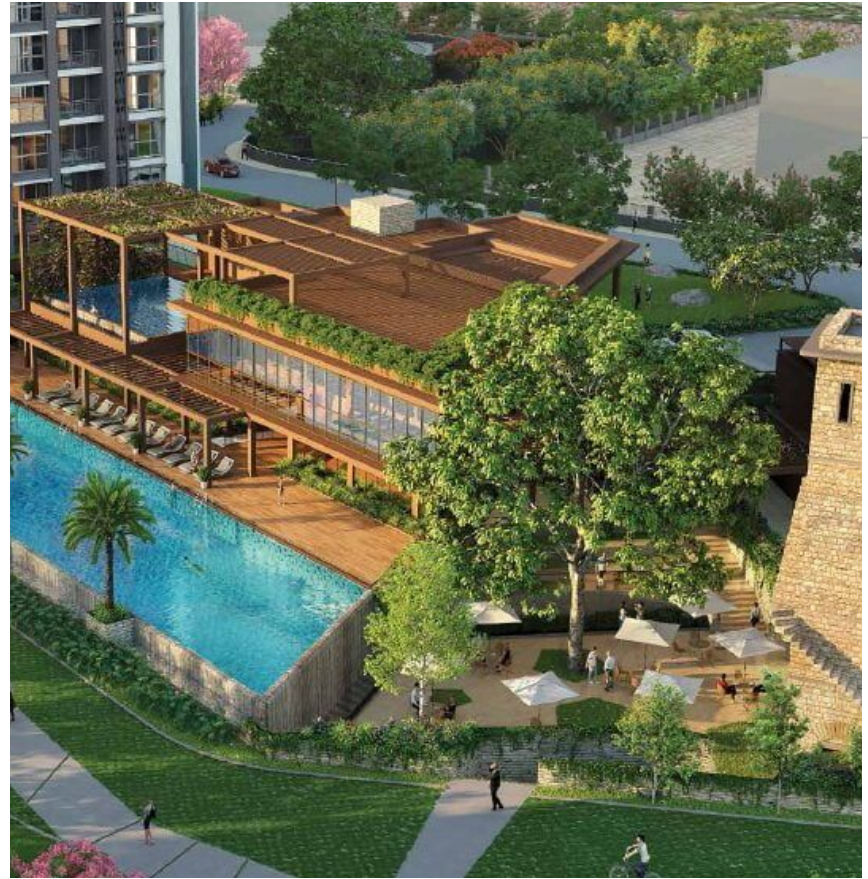
## Park West, Shapoorji Pallonji

- Architects: RSP Design Consultants
- Area: 45 sq acre
- IGBC Certified
- Sustainable Urban Living Project
- Energy-efficient buildings, green spaces, and sustainable materials











## What is your role?

### Developer

Awards and recognition for doing sustainable development in the cityscape of Bangalore

Higher profits for the context and higher selling rates for a certified project

You would have to pay 5% more of construction cost for the process of obtaining the certification

### Architect

Awards and recognition and addition to portfolio

Aligns with the evergreen ideology of sustainability because of scale

Additional layer of consultancy if required

Introduction into the design community of Bangalore with a motive of environmental awareness

Moral fulfilment of responsibility towards the society

### Resident

A higher price of 8% to pay for a certified sustainable building

4bhk with all attached bathrooms

Luxurious and high technological amenities

Maintenance charges and agency for the system used

Would need to be educated and aware about the possible problems related to that system

Raise your flag!

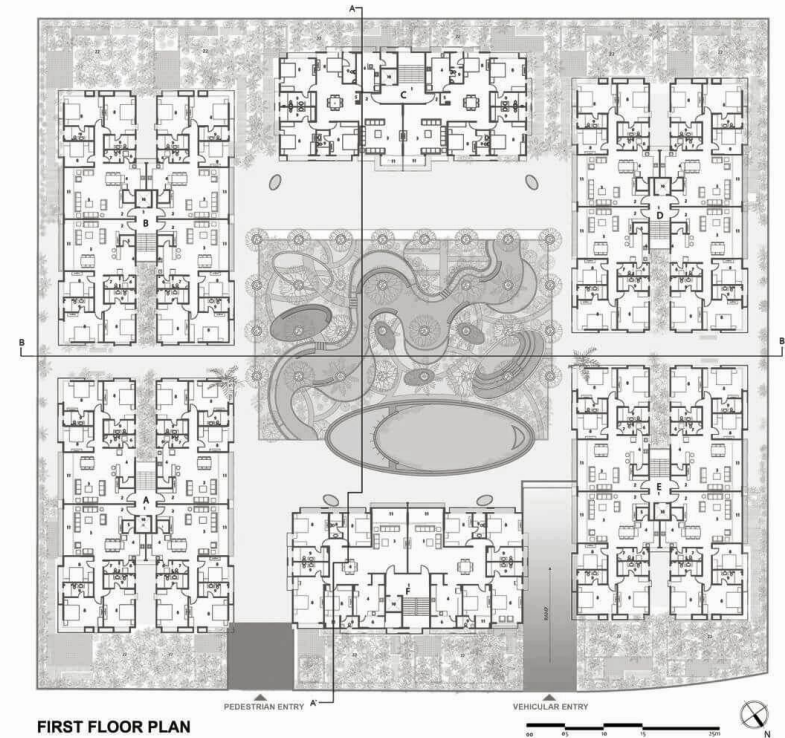
Would you build/design/purchase this project?



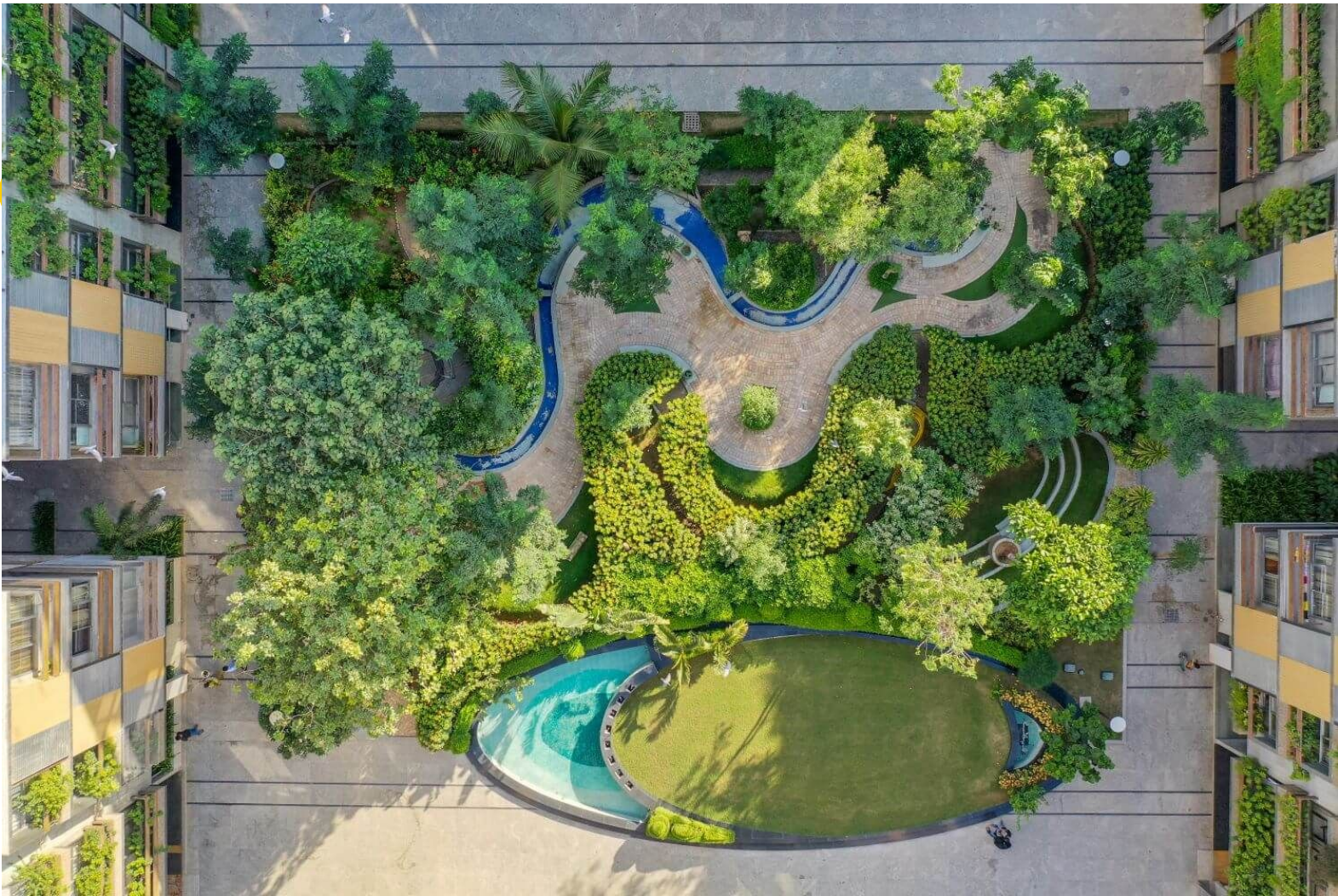


# Urban Oasis, Ahmedabad

- Architects: GRID Architects
- Area: 7102 sq m
- IGBC Certified
- Sustainable compact green building.  
Endorse and encourage community living
- Energy-efficient buildings, green spaces,  
biophilic architecture, reduce carbon  
footprint









## What is your role?

### Developer

Awards and recognition for doing sustainable development in the cityscape of Ahmedabad

Higher profits for the context and higher selling rates for a certified project

You would have to pay 7% more of construction cost for the process of obtaining the certification

### Architect

Awards and recognition and addition to portfolio

Aligns with the evergreen ideology of sustainability

Introduction into the design community of Ahmedabad with a motive of environmental awareness

Moral fulfilment of responsibility towards the society

### Resident

A higher price of 25% to pay for a certified sustainable building

4bhk with common and attached bathrooms

Maintenance charges and agency for the system used

Would need to be educated and aware about the possible problems related to that system

Raise your flag!

Would you build/design/purchase this project?

*These days there are quite a few certifications, where you can get a label to stick on your building: this building is energy-efficient, with 702 points. But it's more complex than that: you can put up zero-energy building that has destroyed a neighbourhood, or does nothing for public space. If you destroy the cultural heritage and value of a place, it isn't sustainable in my view. Creating a living, healthy place to spend time in involves much more than energy reductions.*

(Quoted in Sattrup 2009a, 14–15)



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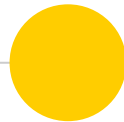


## Difficulties

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- Knowledge Gaps
- Initial Costs
- Technological gaps
- Awareness
- Enforcement and Implications
- Dynamics between stakeholders

This makes Developers and Residents  
Direct Stakeholders and Us as Indirect  
Stakeholders





**In one sentence write down,  
what is environmental  
sustainability to you?**



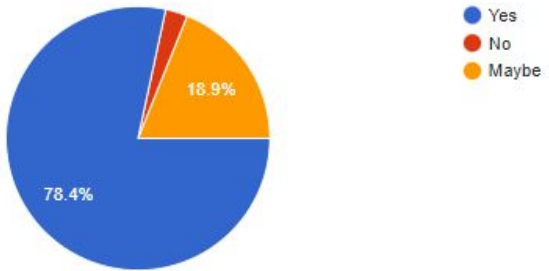
*Maybe it is good that sustainability does not have a fixed or coherent definition ... because if the technical questions of energy efficiency or the technocratic questions of efficient resource use or even the questions of socioeconomic management end up constituting the definition of sustainability in architecture, this will threaten to reduce design to a series of small decisions (on materials, energy or feasibility) that will ultimately have less to do with design and more with management or with political correctness.*

(Pyla 2008, 16)

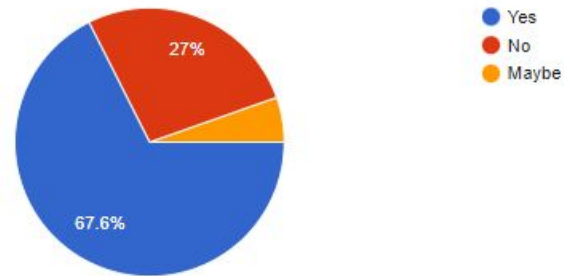




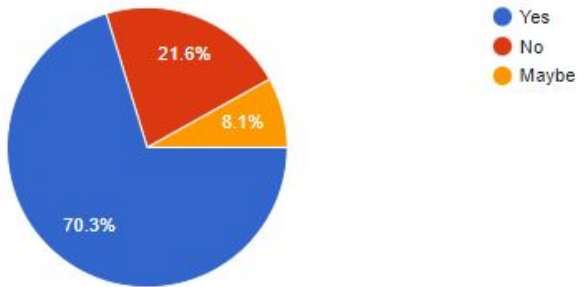
Would you be okay with a system where grey water (water from sink and shower) is re-used to flush the toilet?



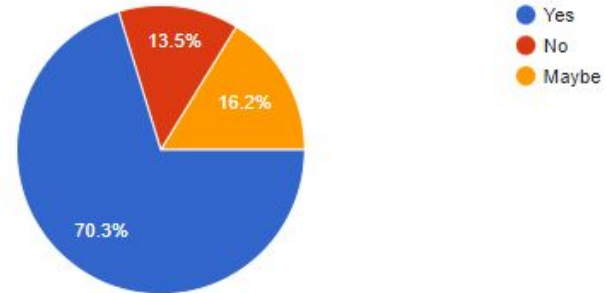
Would it be okay if your car or vehicle is washed with recycled grey water (treated water from sinks and showers) ?



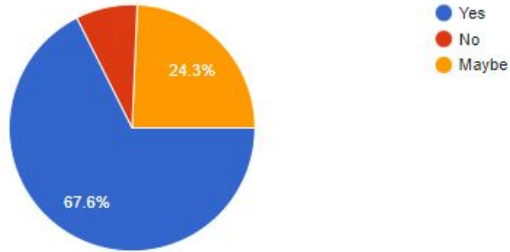
Would you use recycled grey water (treated water from sink and showers) to water your plants?



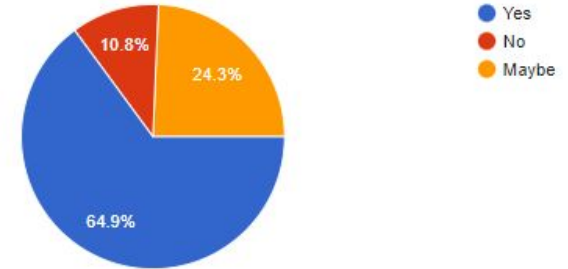
Would you practice composting if you had a kitchen garden?



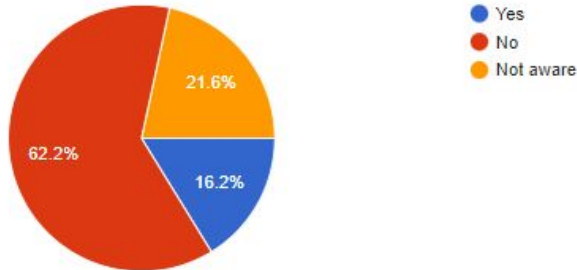
Would you be comfortable living in a house that uses passive cooling (cooling without an air conditioner) or earth cooling techniques?



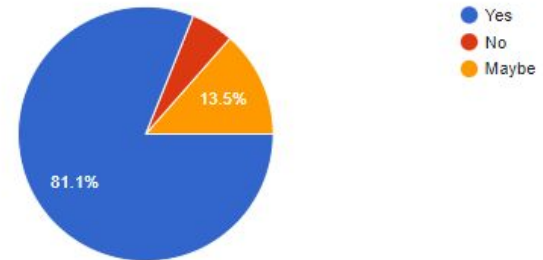
Would you buy a slightly expensive house if it was a 'sustainable' housing complex?



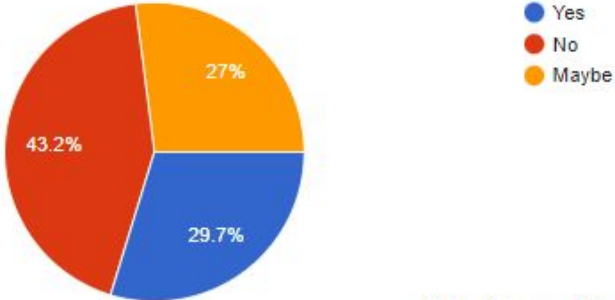
Does your apartment complex follow rain water harvesting, that you know off?



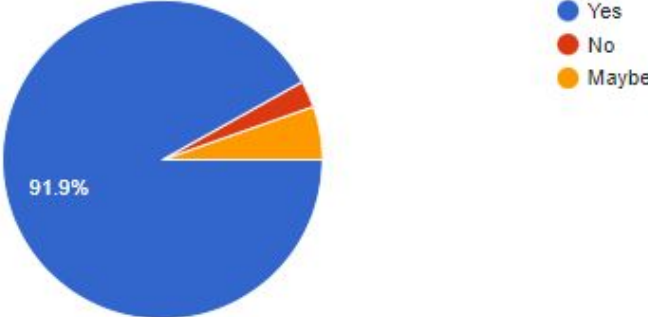
As a housing society, would you invest in a sustainable system, whose initial cost is higher but eventual cost is lesser than what you would pay in the absence of that system?



Would you be willing to share some common spaces with your neighbors, like utility, kitchen garden.



Would you like your apartment complex to have systems that make your building 'sustainable'?



*When you think about the perception of ecological building, it was precisely something to do with wood, contact with nature etc. But the most sustainable construction now is super-insulated and creates its own artificial climate. If you open the window you lose energy. That is really a paradox.*

*(Philippe Rahm, quoted in Sattrup 2009c, 91)*



“

*Your demand for petrol depends on the design of your car, and your demand for a car depends on how the city you live in is designed. So if you can change that, you can change your consumption in the end. The same goes for buildings: it applies to all sorts of things. Architecture and planning can reduce the demand for energy through the way buildings, infrastructure and urban development work.*

(Quoted in Sattrup 2009b, 40)



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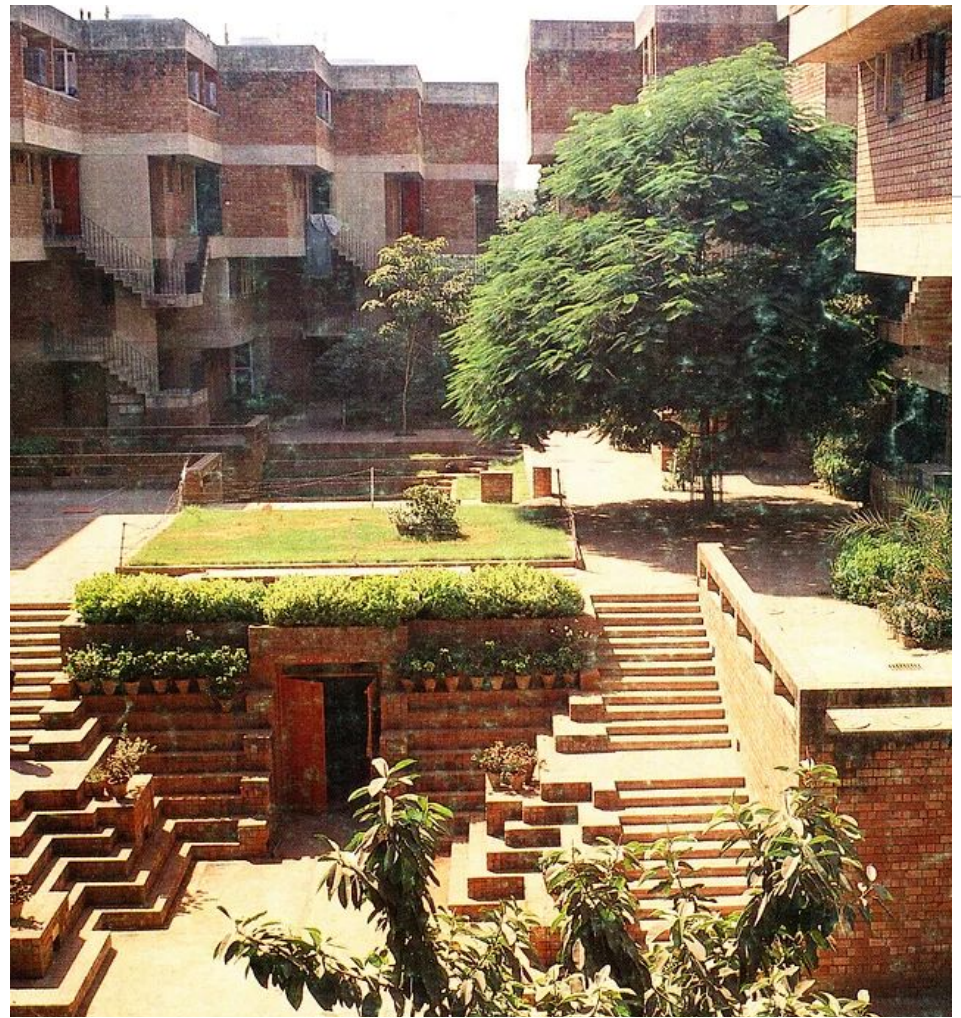
*For certain designers, the latest advances in engineering and environmental technology are central to their objectives; while, for others, it is important to return to the lessons of history and the use of indigenous methods and materials. For another group, the resource of topography, vegetation, solar energy and the earth itself are the means to achieve an expanded vision of organic buildings.*

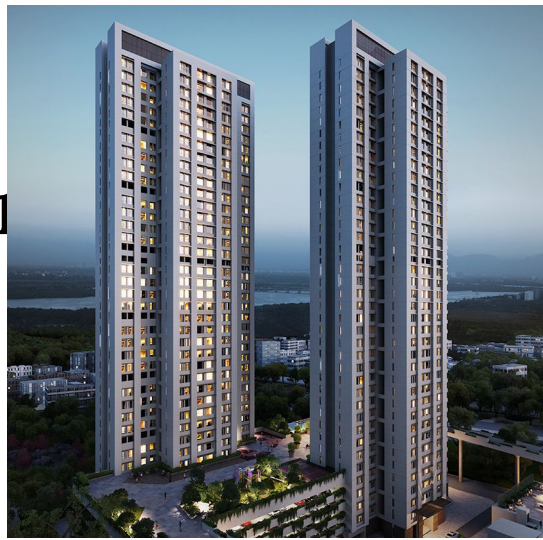
(Wines 2000, 67)



“









# Tara Housing





## Rabi Rashmi Complex





## Piramal Gardens, Thane





## Mahindra Eden, Bangalore





# Godrej Parkridge, Pune





# Big concept

Bring the attention of your audience over a key concept using icons or illustrations





# Thanks!

*Any* **questions** ?

You can find me at

- @username
- user@mail.me



# Roadmap

Blue is the colour of the clear sky and the deep sea

1

Red is the colour of danger and courage

3

Black is the color of ebony and of outer space

5

Yellow is the color of gold, butter and ripe lemons

2

White is the color of milk and fresh snow

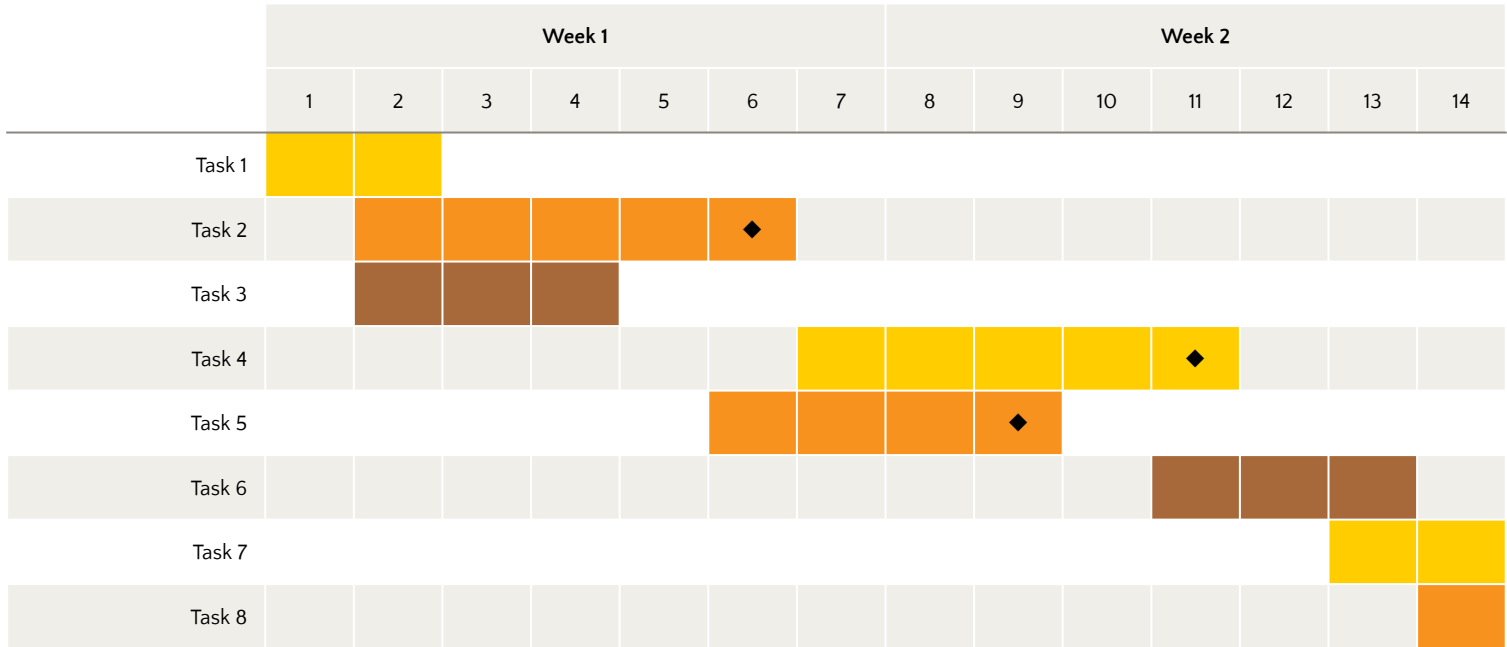
4

Blue is the colour of the clear sky and the deep sea

6

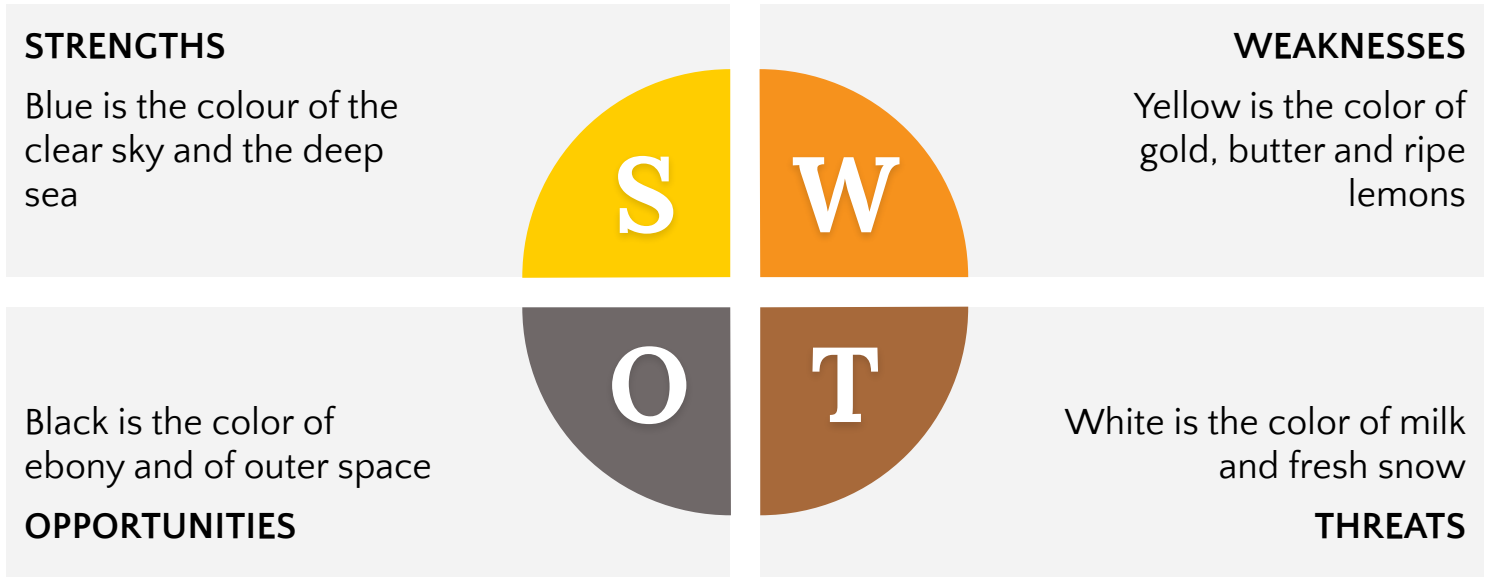


# Gantt chart





## SWOT Analysis





## Team Presentation



**Imani Jackson**

JOB TITLE

Blue is the colour of the clear sky and the deep sea



**Marcos Galán**

JOB TITLE

Blue is the colour of the clear sky and the deep sea



**Ixchel Valdía**

JOB TITLE

Blue is the colour of the clear sky and the deep sea

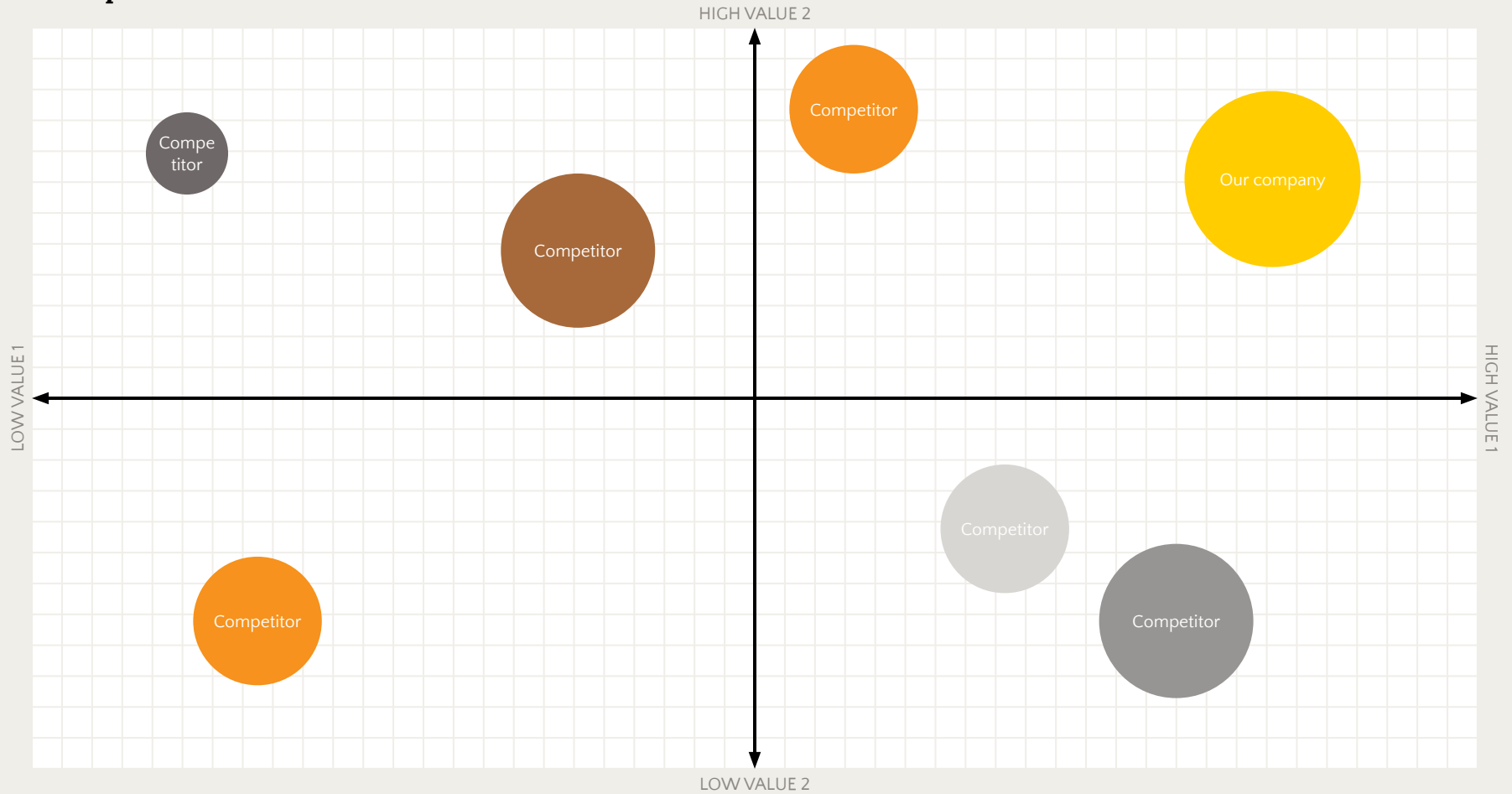


**Nils Årud**

JOB TITLE

Blue is the colour of the clear sky and the deep sea

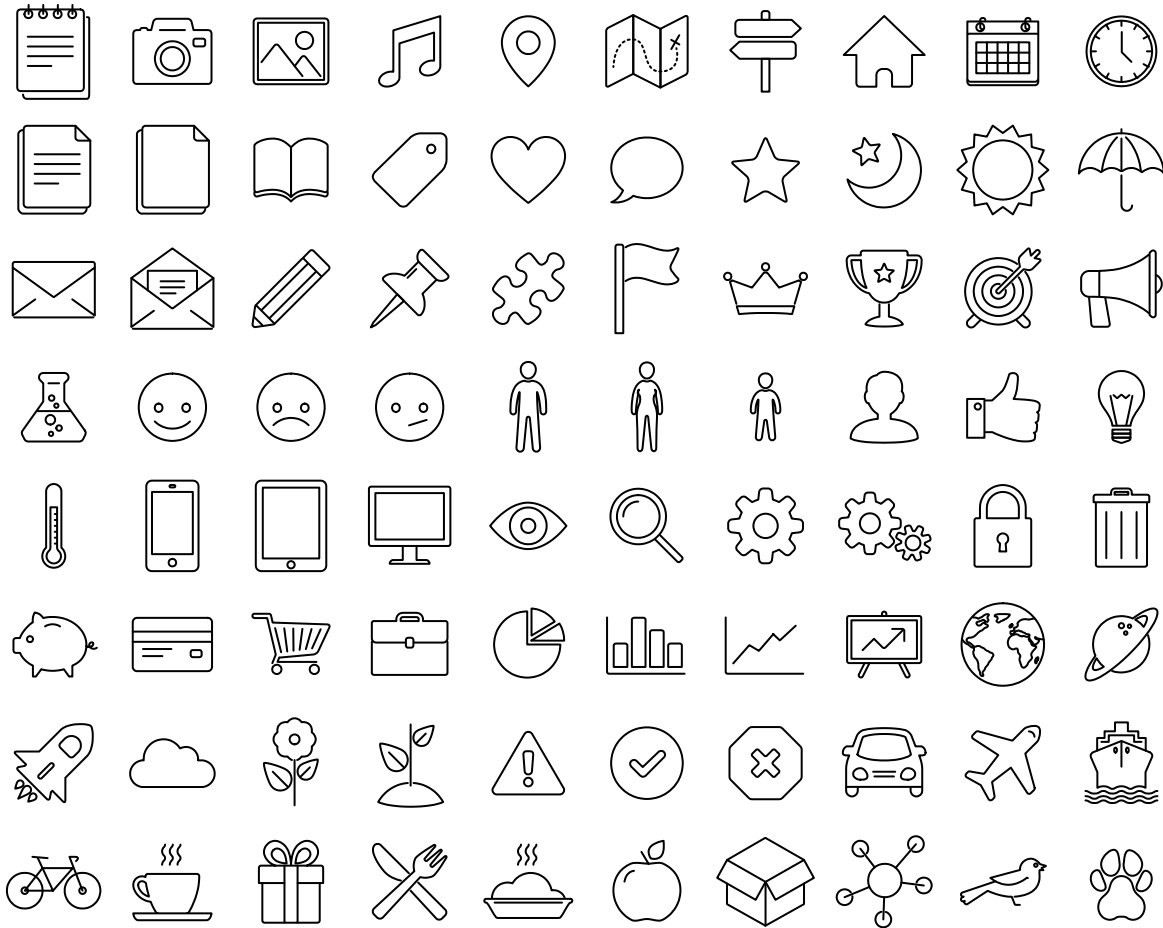
# Competitor Matrix





# Weekly Planner

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
9:00 - 9:45	Task	Task	Task	Task	Task	Task	Task
10:00 - 10:45	Task	Task	Task	Task	Task	Task	Task
11:00 - 11:45	Task	Task	Task	Task	Task	Task	Task
12:00 - 13:15	✓ Free time	✓ Free time	✓ Free time	✓ Free time	✓ Free time	✓ Free time	✓ Free time
13:30 - 14:15	Task	Task	Task	Task	Task	Task	Task
14:30 - 15:15	Task	Task	Task	Task	Task	Task	Task
15:30 - 16:15	Task	Task	Task	Task	Task	Task	Task



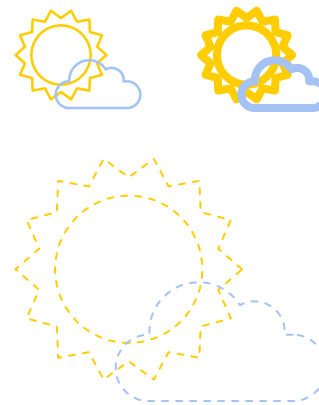
SlidesCarnival icons are **editable shapes**.

This means that you can:

- Resize them without losing quality.
- Change line color, width and style.

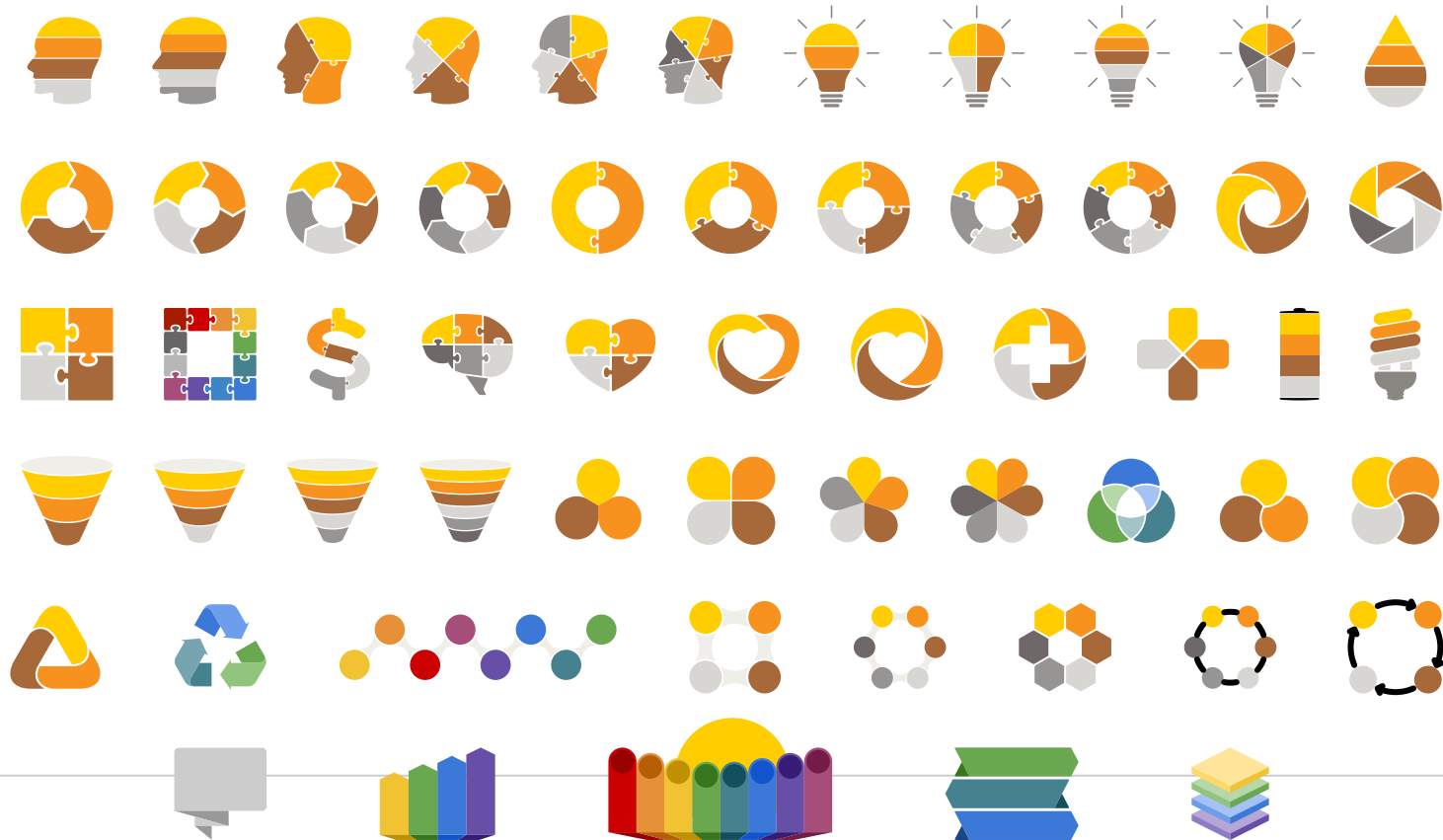
Isn't that nice? :)

Examples:





# Diagrams and infographics



**Now you can use any emoji as an icon!**

And of course it resizes without losing quality and you can change the color.

How? Follow Google instructions

<https://twitter.com/googledocs/status/730087240156643328>



and many more...



## Free templates for all your presentation needs



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