

Accelerate healing
through built
environment

**CENTER FOR
ALTERNATIVE
HEALING OF
CANCER PATIENT**



*Accelerate healing through built
environment*

Center for Alternative healing of Cancer Patient

SUBMITTED BY
Shaikh Mahevash Riyaz

A REPORT

Submitted in partial fulfillment of the requirements for
the degree of Bachelor of Architecture.



University of Mumbai

2020-2021

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Roll No: 16AR23

Date: 12-12-2020

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ABSTRACT

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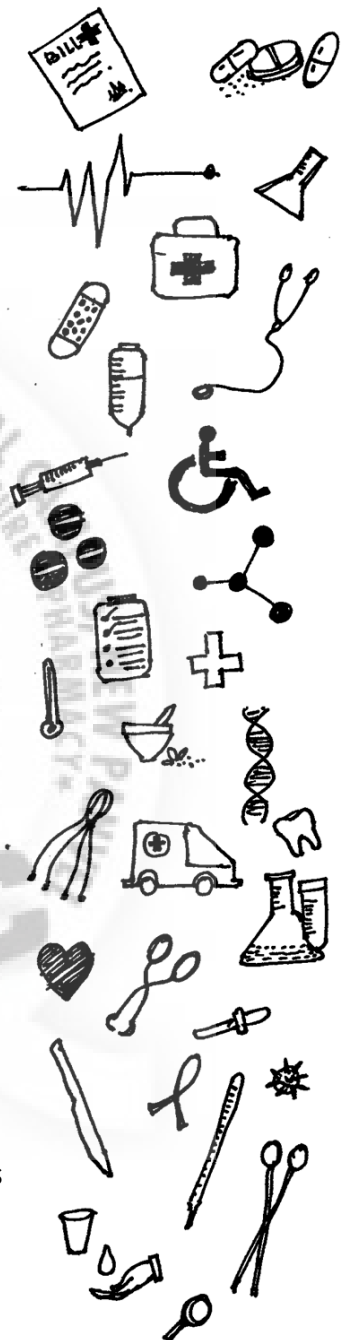
The main aim of this research paper is to establish the criteria for designing an environment targeted at the patient's psychology that helps them feel comfortable and at home while combating a debilitating disease like Cancer. This study is directed at the contribution of architects in reducing stress in patients and influences their psychology in a positive way.

Cancer is a dreadful disease that affects millions of people all over the world. Cancer knows no political, religious, caste, colour, race boundaries. It affects people from different economic segments and a varied age group. Cancer patients spend a lot of time at hospitals depending on the severity of their disease.

The research emphasizes on reducing the stress through built environment of a cancer patient.

It mainly aims at developing a concrete relationship between built environments with the reactions of cancer patients. The reduction of stress of this disease through different architectural treatments and principles is the main goal. The stress has an impact on the recovery of such patients.

The findings from this research provide evidence that there is a clear link between cancer patient's psychology and the built environment. The main conclusions that I seek to draw from this dissertation is attempt to establish the elements of the built environment that can influence a cancer patient's psychology and come to a design criteria for such an environment.



Background Study

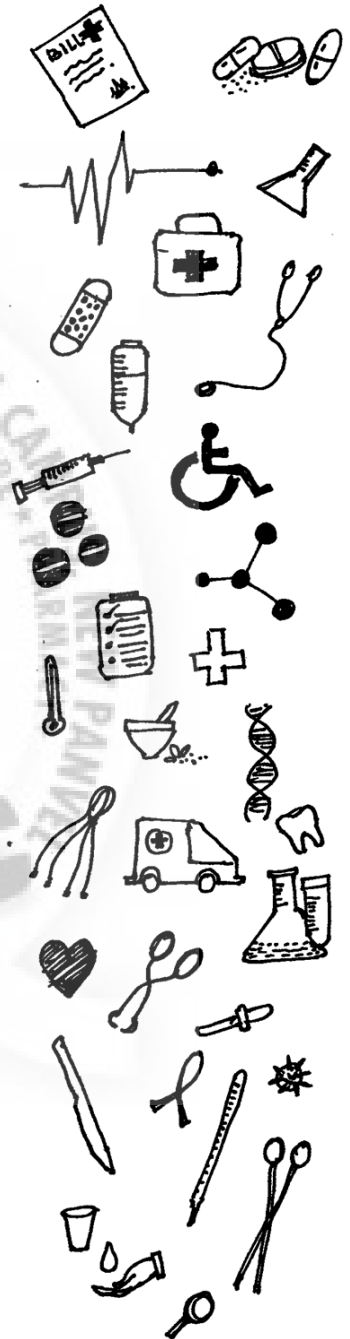
In the 21st century, we seldom give a pause to our hectic life and ponder upon the thought that 'what have we gained and what have we lost?' To many of us the answer would be, 'immeasurable workload and a sedentary lifestyle is what we have gained' and the core reason for which all this is done 'the health' is often neglected without giving a second thought.

Currently with the lifestyle which offers contaminated air to breathe, toxic food to eat and impure water to drink we would sooner or later be diagnosed with some major disease. Although modern medicine and technology have constantly worked towards finding a cure to many ailments, there are many diseases which continue to top the list of death rates through decades.

One of such diseases is 'cancer'. A word which most of us refer to as a terminal disease which often results in death. Although there is a cure for cancer and survival rates have continuously been increasing, there are other characteristics of this disease which makes it stand out.

The mental state of a cancer patient is like an extremely stretched rubber band which would deform at any instance. A constant physical, emotional as well as economical pressure is seen which results in the patient surrendering its will to cancer before the body would actually do.

In all these circumstances, a quick escape from the agony and a positive approach towards the cancer treatment would result in wonders.



Aim-

- To neutralize the agony and trauma of a cancer patient through built- environment.

Objectives-

- To produce evidence that cancer is one of the deadliest disease being ambiguous in nature.
- To collect evidence about the complexity of cancer patients phycology.
- To study human-oriented design strategy and synthesize process of healing through surrounding.
- To collect information about cancer treatment, process and devices required for it.

Scope-

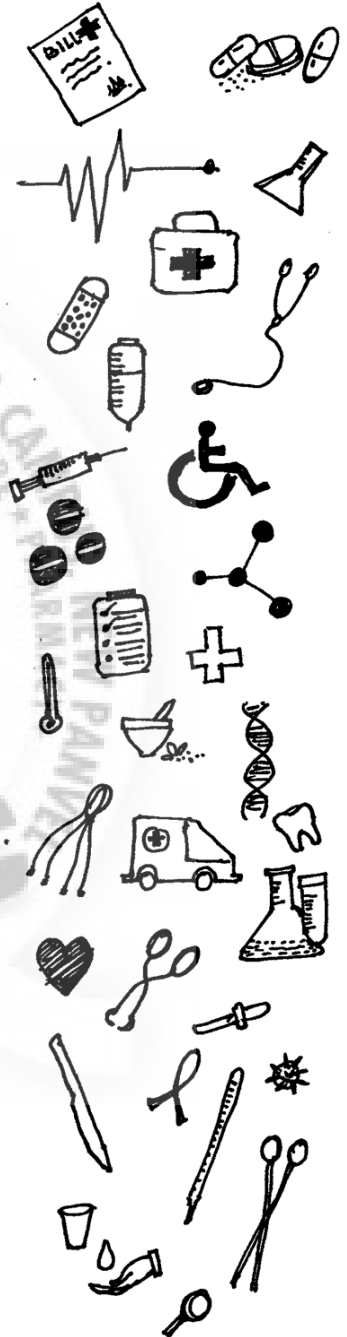
The spectrum of study would initially include in understanding cancer and its statistics at different levels. It would be supported with the interview and opinion of a patient being diagnosed with cancer and experience of their near and dear ones. Literature study to understand the link between a human mind and the built environment. An architectural solution to cater their demand of psychological well-being is required..

Limitation-

- Surgery and operation facility are not taken into consideration.
- Any other disease is not taken into consideration for study.

Research Methodology-

The research revolves around finding evidence regarding cancer supportive care and ways of architectural invention that would positively affect the user. The methodology includes key facts and statistics about the topic, its experimental proves about factors affecting human psychology and architectural link between the cancer and healing.



Research Methodology

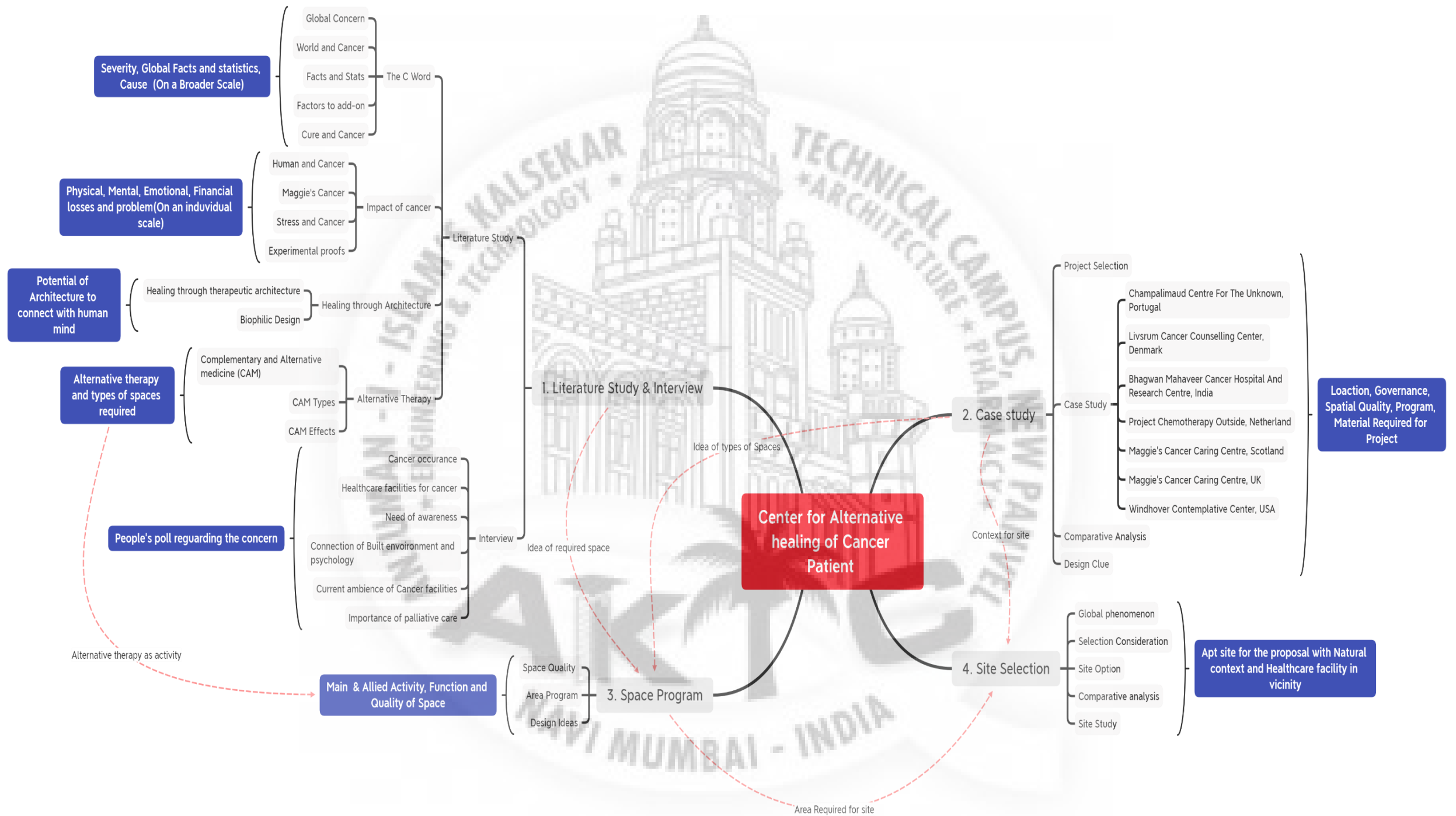


Fig. 0.1 Mind map Showing the overall process of research

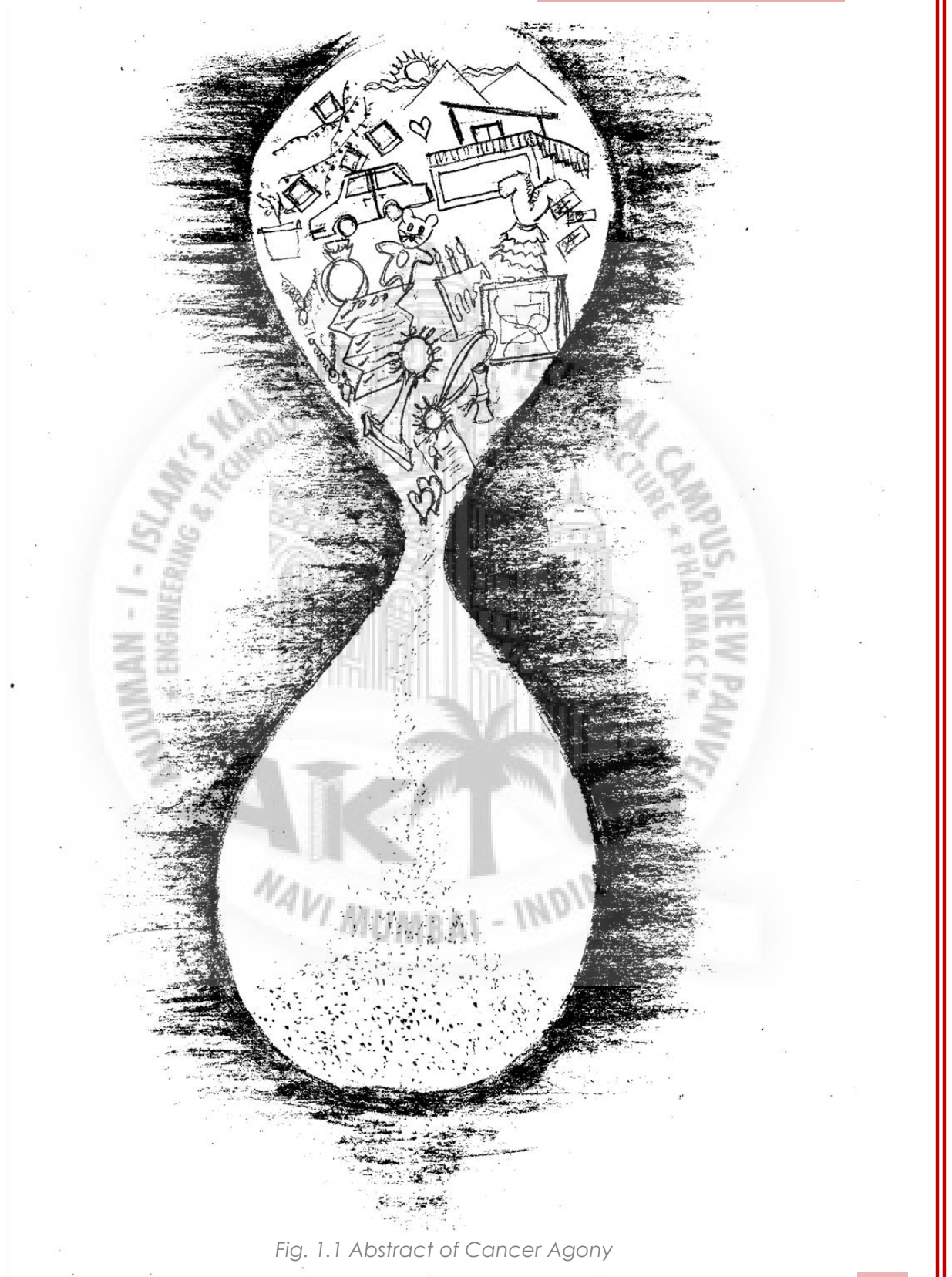


Fig. 1.1 Abstract of Cancer Agony

1. The 'C' word

Global health concern

Cancer is a **major burden of disease** worldwide. Each year, **millions of people are diagnosed** with cancer around the world, and more than half of the patients eventually die from it. In many countries, cancer ranks the second most common cause of death following cardiovascular diseases. With significant improvement in treatment and prevention of cardiovascular diseases, cancer has or will soon become the number one killer in many parts of the world.

World and cancer

Continent

Cancer **incidence and mortality rate varies** across region, sex and country's economic status.

In Asia, the most common cancers in men are lung, stomach, liver, colorectal and oesophageal cancers while the most common cancers in women are breast, lung, cervical, colorectal and stomach cancers.



Fig. 1.2 Map of Cancer Leading Nations

Country

Cancer is a **major public health concern** in India. According to estimates from National Cancer Registry Program of ICMR, there are approximately 28 lakh cases of cancer in India at any given point of time and about **11 lakh new cases** occur every year. Nearly **5 lakh patients die** due to the disease each year. The trend is gradually rising.

Inside the country itself, there is **geographical variation in the pattern of occurrence** of various cancers. For example; in the North Eastern States, the incidence of lung and stomach cancers are much higher than the other parts of the country. The incidence of gall bladder cancer is high in northern and some north-eastern registries. Breast is most common cancer in the metropolitan areas, whereas, cervix cancer is the most common among females in the rural registries.

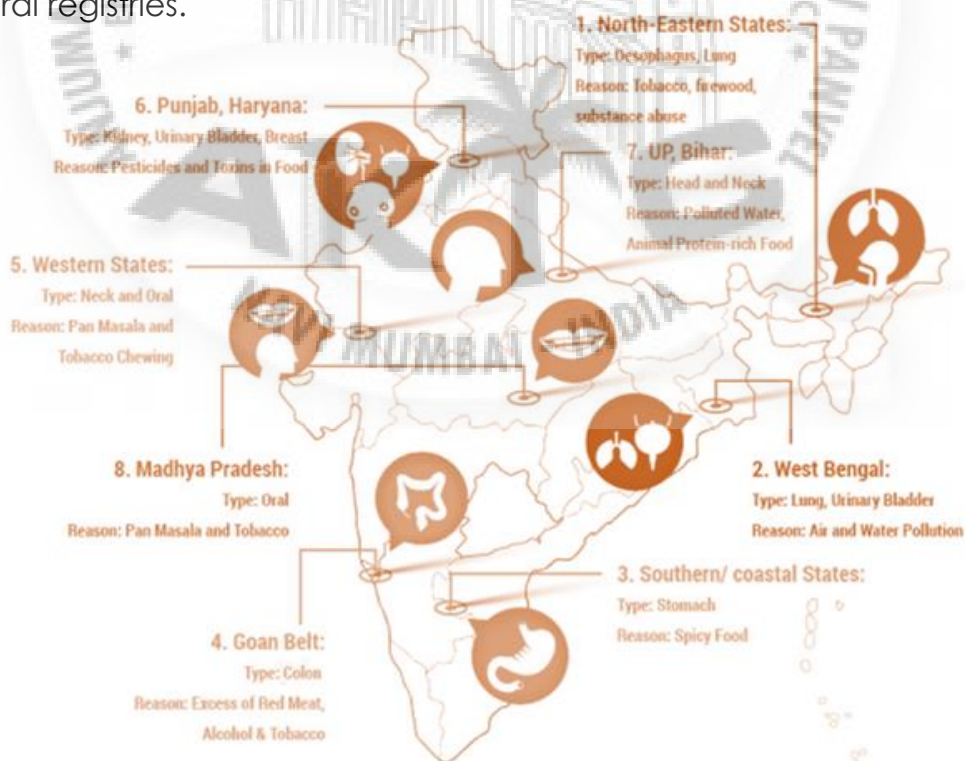


Fig. 1.3 Map of Cancer as per region in India

City and States

Mumbai region has been a **host to key advancements in cancer treatment** and studies in India. The country's **first cancer treatment centre**, Tata Memorial Centre, was initiated in Mumbai in 1941; since then, it has played a leading role in improving cancer outcomes. The Indian Cancer Society, founded in Mumbai in 1951, is the oldest and largest cancer organization in the country. Its objective is to **reduce the suffering of cancer patients and support cancer interventions to reduce the overall burden.**

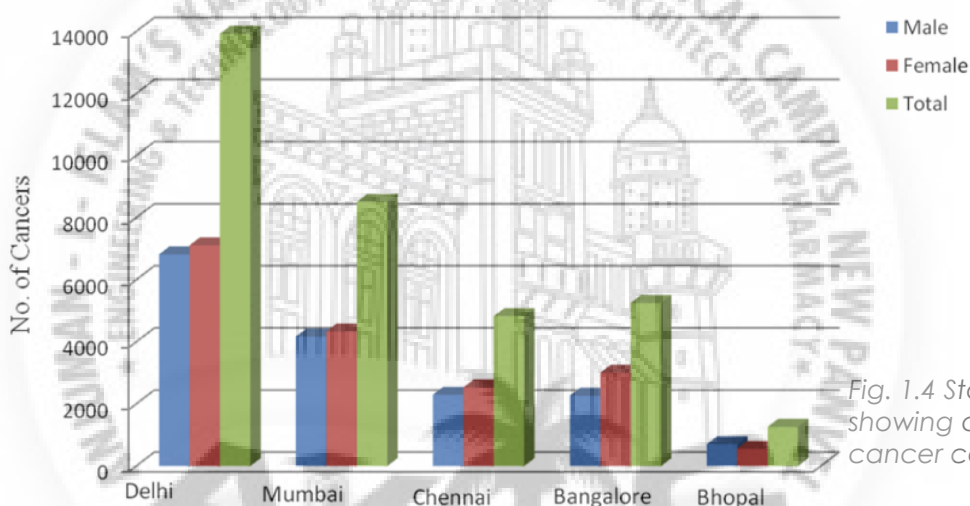


Fig. 1.4 Stats showing cities and cancer counts

Facts and Statistics

Cancer is the second leading cause of death globally, and is responsible for an estimated 9.6 million deaths in 2018. Globally, about 1 in 6 deaths is due to cancer.-(article)

Globally cancer is the **second major reason of death**, to an extent that one of every sixth death in the world is due to cancer. One third of death from cancer due to behavioral and dietary risk. The effect of cancer is seen more in low and middle-income countries. **Lung cancer is the most seen** form of cancer among the masses.



Fig. 1.5 One of every sixth person is affected by cancer

Factors to add on

High blood pressure, high cholesterol for diabetes have twice the chance of getting cancer than a normal human being. People who have suffered from heart attack have trice the possibility of having cancer than a normal human being. The probability with every age group remains the same. **The studies show that these chronic diseases not necessarily lead to cancer but can play a significant role in assisting growth of cancer cells.**

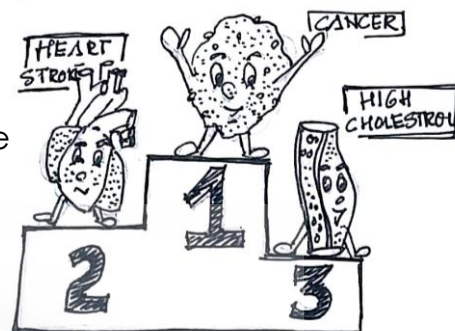


Fig. 1.6 Cancer leading the Global count

| Health Condition | % Diagnosed With Cancer |
|------------------------|-------------------------|
| High blood pressure | 11.8 |
| No high blood pressure | 5.0 |
| High cholesterol | 11.7 |
| No high cholesterol | 5.3 |
| Diabetes | 12.7 |
| No diabetes | 6.4 |
| Heart attack | 18.1 |
| No heart attack | 6.5 |

Table 1.1 No. of people having chronic disease and leading to cancer

Chronic disease accounts for one fifth of the cancer cases globally. It is a major factor contributing to the cause of cancer. Physical activity reduces the risk of cancer and cancer associated chronic disease. The study could prevent many cases adding on to cancer growth. The study suggests that these chronic diseases are an overlooked factor for cancer and should be treated with equal importance. It also suggests that physical activity is a promising approach to reduce cancer risk associated with chronic disease.

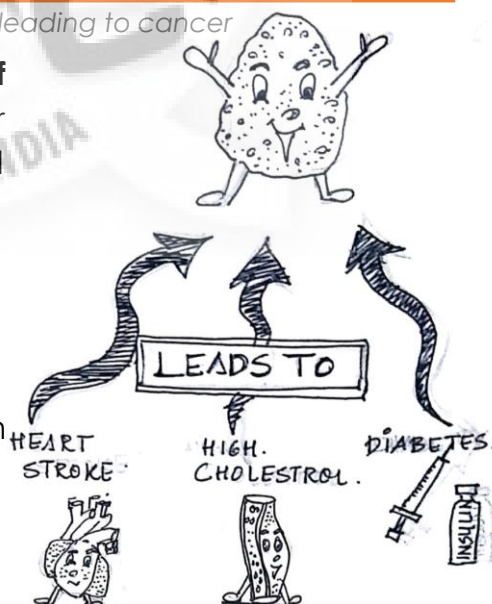


Fig. 1.7 Chronic disease leading to cancer

Cure and Cancer

Cancer is a **rapid abnormal growth of an old cell** in the body which fails to degenerate. These extra abnormal cells then accumulate to form tumors which leads to cancer. Cancer may occur **anywhere in one's body**, from tip to toe.

Based on the area of impact they could be broadly classified into **carcinomas, sarcomas, leukemia, lymphomas and central nervous system cancer**.

Ignorance and denial leads to delayed diagnosis and treatment; most Indians change doctors when asked to go in for a screening or biopsy. Other than the fear of invasive treatment, **disfigurement and financial burden**, the **ill-placed belief** that a cancer patient will always die makes patients and their families refuse specialized treatment. The importance of awareness can be seen from the fact that in highly literate Kerala, 40% cases are detected early, a fact that ultimately leads to fewer deaths.

Oncologists suggest that if you notice any major changes in the way your body functions or feels, you should seek medical help. As early detection means better chances of cure.



Fig. 1.8 Cancer overtaking an individual's hope

2. Impact of Cancer

Human and cancer

Pre- treatment

Immense grief is a cancer patient's and his family's first experience with the cancer when the patient gets **diagnosed with cancer**. **Grieving** is a **normal response to a loss**. The loss here can include the loss of patient's normal daily routine, the impact of the diagnosis on other family members, and the financial impact of the diagnosis.

Patient and his family goes through different stages of grieving. Denial being the first followed by anger and bargaining, questions like **"why me?"** **Depression and sadness** comes next and slowly comes the acceptance where they have made adjustment to the illness. **Spiritual symptoms** like feelings of being closer to God or, conversely, feelings of anger and outrage at God, strengthening of faith or, conversely, questioning of faith.

During Treatment

Other than the damage caused by cancer itself, **cancer treatments like chemotherapy, radiation, hormone therapy, surgery, and other cancer treatments have various side effects** often leading to substantial permanent impairment of several organ systems. Some of the common side effects of chemotherapy and radiotherapy are fatigue, nausea, vomiting, decreased blood cell counts, hair loss, mouth sores, skin irritation and pain.



Fig. 1.9 Diagnosis of Cancer

Financial needs can arise from the high costs of medical treatment, drugs, and other health support needs, such as medical supplies that are not covered by insurance and/or are beyond an individual's income level. This **financial stress is compounded when a patient suffers a job loss, is not working during periods of treatment, or lacks health insurance.**

Post-treatment

For some people, once treated no other treatment is needed and they are cured of their cancer. While others continue to live with cancer and its treatment, they become terminally or chronically ill of the disease. Cancer patients sometimes suffer from **long term side effects** of cancer treatment, pain, vomiting and nausea being the most common ones. **Cancer recurrence** defined as the return of cancer after treatment is what bothers most of the patients once their treatment is over.

Maggie's cancer

A view from the front line is a narration of a woman **Maggie Keshwick and her experience, while she was diagnosed with cancer** and the negative as well as the positive impact 'cancer' has on her and her family.

She began with the diagnosis of the **Big C** which would all of a sudden turn her life upside down. Her immediate response was 'how much time do we have?' (Knowing that this cancer would not only have an impact on her but her family as well)



Fig. 1.10 Common space for communication



Fig. 1.11 Maggie Keshwick

Soon as the treatment began the symptoms of the Cancer grew prominently and her condition slowly began to deteriorate. Back pain, exhaustion, anemia, menopause, fever and hair loss were some of the symptoms seen. In such circumstances she had with her the two choices left **'to give up to the situation or to fight back'**.

In a condition to do anything to get rid of cancer, Maggie realized that there are various **doctors who could guide or misguide them during their treatment**.

A long span of her time was spent on figuring out the **ancient therapy for cancer including Ayurveda. Qigong exercise** weekly done to boost up reflexes.

Soon she was hit up by pneumonia and had to be **hospitalized**. Her condition worsened to an extent that she had to **use a wheelchair**.

Here she decided to change her death into a **'positive death'** by initiating the idea of providing hope in this difficult time.

She observed very minute details that had a positive and negative impact. In a **situation lack of firm cancer advice, the surrounding neon lights in hospital wards, the windowless corridor, and open basin at washroom with no privacy to cry** were some of the elements that had a **negative impact over her life**. Whereas **healthy discussion with doctors, soothing environment, scenic view, meditation and meeting people who share the same pain** help to nullify her agony.

With these elements in mind she decided to March on against cancer with the basic intent of not to lose the joy of living in the fear of dying. She drafted a blueprint for a space which would cater to cancer treatment support.

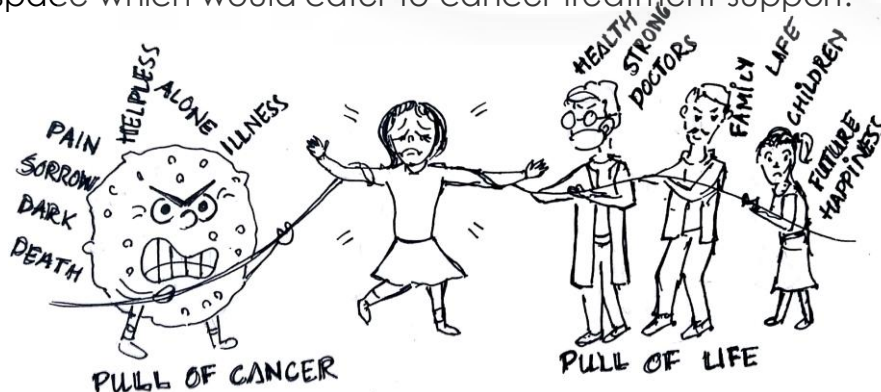


Fig. 1.12 Graphical representation of Maggie's condition during Cancer

Stress and Cancer

Being under mental physical or emotional pressure is termed as **psychological stress**. Experiencing the stress from time to time repeatedly may have an adverse effect on health. When the stress factor increases considerably where one cannot manage it, the condition results in distress, which is recognized as a **cancer stimulating factor**.

Any kind of **stress response in release of stress hormone which increases blood pressure, blood sugar level and speed heartbeat rate**. This tends to weaken the immunity. Although there is lack of evidence and a precise mechanism which shows **stress can cause cancer**. People who attempt to manage their stress through risky behavior such as **alcohol consumption or smoking** and up into a poor quality of life after cancer. On the other hand people who cope with stress through a positive approach end up with an effective recovery from cancer.

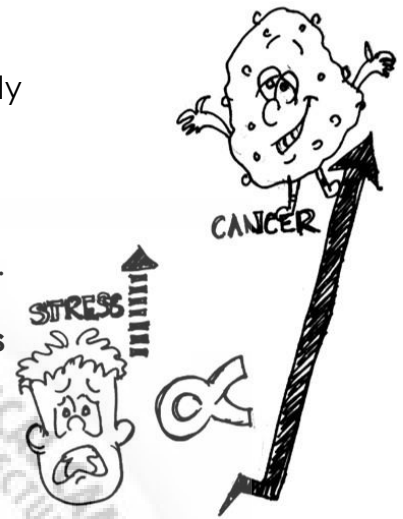


Fig. 1.13 Graphical representation of the fact that stress increases growth of cancer

Experimental proof

“Chronic stress creates something of a perfect storm where precancerous cells can grow and flourish,” says Ankur Parikh, DO, Medical Director of Precision Medicine at Cancer Treatment Centres of America® (CTCA)

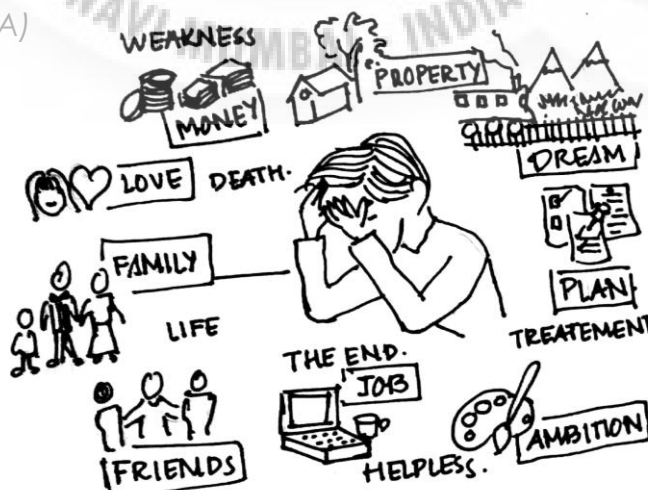


Fig. 1.14 Agony of a Cancer patient

An experiment conducted based on mice induced with tumour, where **one was kept with compact condition under stress and other was under proper care**. The results showed growth and spread in the **tumour cell of the mice which was under unfavourable conditions**. On the other hand the mice **under favourable condition showed a stunt growth of tumour** and effective recovery.

Under constant state of stress cancer cells could effectively grow and progress. The **'fight and flight'** response generated within our body which **releases hormones that are responsible for the rise of cholesterol level, blood pressure and heart beat rate**.

A constant exposure to stress may result in various health disorders and weakens the immunity. A person exposed with **chronic stress provides a suitable condition for the cancer cell to progressively grow**.

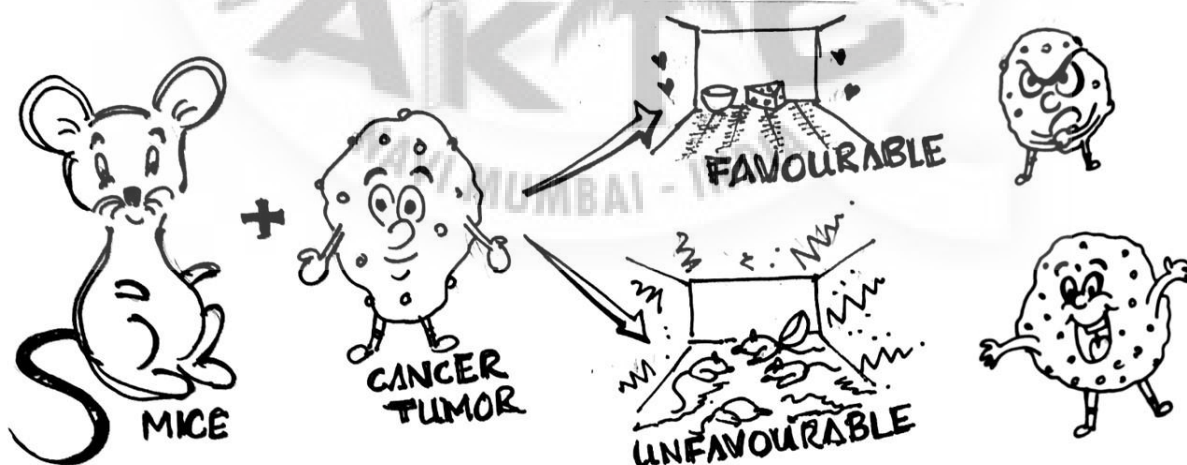


Fig. 1.15 Experiment showing stress increases growth of cancer

3. Healing through Architecture

Healing through therapeutic architecture

Architecture is an amalgamation of science, expression, aesthetics, technology and satisfaction.

The example of church, mosque and cathedral continues to fascinate us with its marvelous architecture touching the human mind and portraying a sense of superiority. Over the time, with rapid urbanization human beings have been neglecting the virtues of nature as they find comfort in built environments such as shopping complexes instead of natural parks.

Activating the sensory organ through use of natural factors such as sound, light, color, smell and pleasant view could certainly help in well-being of a person. Nowadays prisons are also designed with a soothing environment with the vision to counsel prisoners. Likewise, hospitals are designed with an environment which could heal the patient. Studies have shown that built environments closely impact a patient's well-being. It affects the patient comfort level, recovery, its length to stay, medication intake, stress level, etc. These are positive effects of nature and exposure to outdoor space, which helps in a distraction from stress and anxiety of patients. Beautiful and calm nature scenery can also act as a natural painkiller to reduce the suffering.

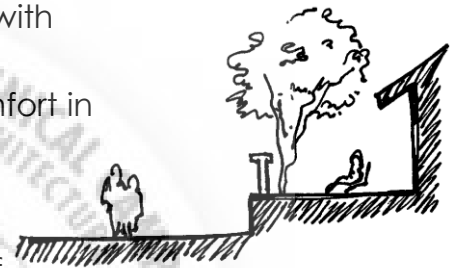


Fig. 1.16 Connection with nature and outdoor spaces

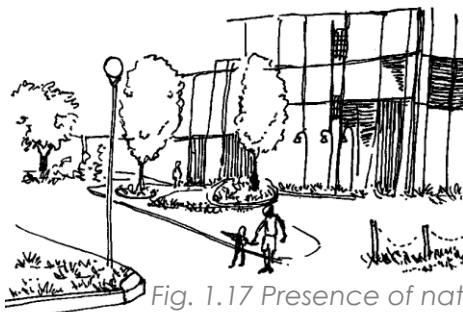


Fig. 1.17 Presence of nature



Fig. 1.18 Natural elements in Built environment

Artificial light should be flexible and controllable which could help the patient as well as doctor to carry out their task effectively.

Fenestration plays an integral part in one's room and studies show that a patient with a window in a room having view of the natural environment recovers faster than a patient in a physically closed space.

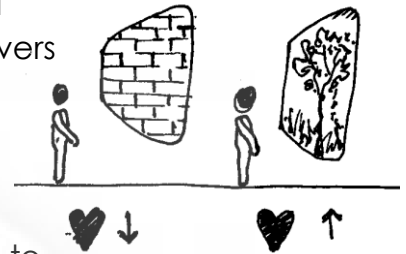


Fig. 1.19 Effect of Fenestration on human mind

Color has a direct impact on patient health. Since certain colors intend to encourage activities, while others promote passive behavior. According to color therapy, color has the ability to modify one's mood, emotion, behavior and mental state.

Material does not have a direct impact on any individual but is responsible to shape a built environment, its temperature, function and indirectly can lead to comfort or discomfort. If the building is harmonious and close to nature it has a positive effect internally as well as externally. Design of self-sufficient spaces like Eco cycle houses links directly with the natural environment.

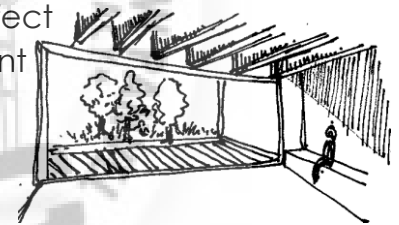


Fig. 1.20 Effect of Natural Light on human mind

Good acoustics have a positive impact on human psychology as it reduces the risk of conflict and error in the healing environment. The quality of noise affects the patient quality and quantity of sleep. The sound of door closing too has an impact. A sound absorbing ceiling to reduce noise propagation helps to enhance the user experience.

Connection with nature, shows that people are more happier, healthier, smarter and creative according to a study. Nature has positive effects on people with attention deficit disorder, asthma, and obesity, and being in nature relieves stress and improves physical health.



Fig. 1.21 Effect of Natural elements on human mind

Biophilic Design

1. **Visual Connection with Nature** – Stimulating views to elements of nature, living systems and natural processes; such as a window with a garden or sea view, potted plants, flower-beds, courtyard gardens, green walls and green roofs.
2. **Non-Visual Connection with Nature** – Often undervalued design interactions that stimulate our other senses of sound, touch, smell and taste to remind us of our connection to nature.
3. **Non-Rhythmic Sensory Stimuli** – The rich sensory stimuli of nature in consistent, yet unpredictable, motion; such as the gentle sway of grasses or leaves in a breeze, or ripples on water.
4. **Thermal & Airflow Variability** – The subtle changes in air and surface temperature, humidity and airflow across the skin that mimic natural environments.
5. **Presence of Water** – To see, hear or touch it.
6. **Dynamic & Diffuse Light** – Clever use of light and shadow to mimic the lighting conditions or circadian processes occurring in nature.
7. **Connection with Natural Systems** – An awareness or proximity to natural processes, such as seasonal changes, reminding us of the process of healthy ecosystems.

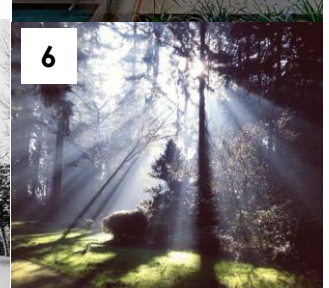
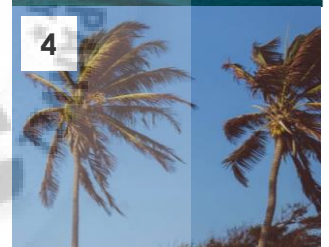


Fig. 1.22 Elements of Biophilic Design

4. Alternative Therapy

Complementary and Alternative Medicine (CAM)

Alternative therapy (or alternative medicine) is a non-conventional approach to healing. Complementary and alternative medicine (CAM) are usually discussed together, but are actually two different therapy approaches:

- **Complementary medicine:** This is any form of therapy used in combination with standard or conventional medicine. Complementary therapy usually serves to relieve symptoms and improve quality of life.
- **Alternative medicine:** Alternative medicine is used alone instead of proven standard medical treatment.

Type of CAM

Base on traditional practices, use of advancement in technology study and various other factors, many complementary and alternative therapies could be listed down.

- **Acupuncture:** During acupuncture treatment, a practitioner inserts tiny needles into your skin at precise points. Studies show acupuncture may be helpful in relieving nausea caused by chemotherapy.
- **Aromatherapy:** Aromatherapy uses fragrant oils to provide a calming sensation. Oils, infused with scents such as lavender, can be applied to your skin during a massage, or the oils can be added to bath water.



Fig. 1.23 Alternative Therapy



Fig. 1.24 Acu-puncture



Fig. 1.25 Aromatherapy

- **Exercise:** Exercise may help you manage signs and symptoms during and after cancer treatment. Gentle exercise may help relieve fatigue and stress and help you sleep better.
- **Hypnosis:** Hypnosis is a deep state of concentration. During a hypnotherapy session, a therapist may hypnotize the patient by talking in a gentle voice and helping you relax. The therapist will then help you focus on goals, such as controlling your pain and reducing your stress.
- **Massage:** During a massage, the practitioner kneads the patient's skin, muscles and tendons in an effort to relieve muscle tension and stress and also promote relaxation. Several massage methods exist. Studies have found massage can be helpful in relieving pain in people with cancer.
- **Meditation:** Meditation is a state of deep concentration when you focus your mind on one image, sound or idea, such as a positive thought. When meditating, you might also do deep-breathing or relaxation exercises. Meditation may help people with cancer by relieving anxiety and stress.
- **Music therapy:** Music therapy may help relieve pain and control nausea and vomiting. Music therapy is safe and doesn't require any musical talent to participate. Many medical centers have certified music therapists on staff.



Fig. 1.26 Exercise



Fig. 1.27 Hypnosis



Fig. 1.28 Massage



Fig. 1.29 Meditation

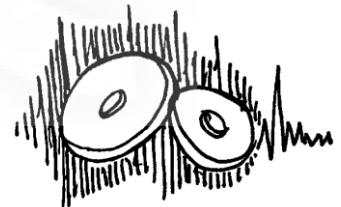


Fig. 1.30 Music Therapy

- **Relaxation techniques:** Relaxation techniques are ways of focusing your attention on calming your mind and relaxing your muscles. Relaxation techniques may be helpful in relieving anxiety and fatigue



Fig. 1.31 Relaxation Therapy

- **Tai chi:** Tai chi is a form of exercise that incorporates gentle movements and deep breathing. Tai chi can be led by an instructor, or one can learn tai chi on their own following books or videos. Practicing tai chi may help relieve stress.



Fig. 1.32 Tai Chi

- **Yoga:** Yoga combines stretching exercises with deep breathing. There are many types of yoga, each with its own variations. Yoga may provide some stress relief for people with cancer. Yoga has also been shown to improve sleep and reduce fatigue.



Fig. 1.33 Yoga

| If you're experiencing: | Then consider trying: |
|-------------------------|--|
| Anxiety | Hypnosis, massage, meditation, relaxation techniques |
| Fatigue | Exercise, massage, relaxation techniques, yoga |
| Nausea and vomiting | Acupuncture, aromatherapy, hypnosis, music therapy |
| Pain | Acupuncture, aromatherapy, hypnosis, massage, music therapy |
| Sleep problems | Exercise, relaxation techniques, yoga |
| Stress | Aromatherapy, exercise, hypnosis, massage, meditation, tai chi, yoga |

Table 1.2 Post-treatment effect of Cancer and its cure

Effects of CAM

Alternative cancer treatments may not play a direct role in curing your cancer, but they may help you cope with signs and symptoms caused by cancer and cancer treatments. Common signs and symptoms such as anxiety, fatigue, nausea and vomiting, pain, difficulty sleeping, and stress may be lessened by alternative treatments.

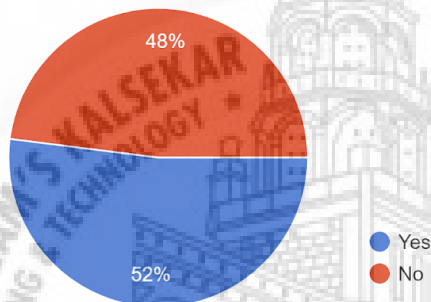


Fig. 1.34 Use of Natural and Built environment for acceleration Healing

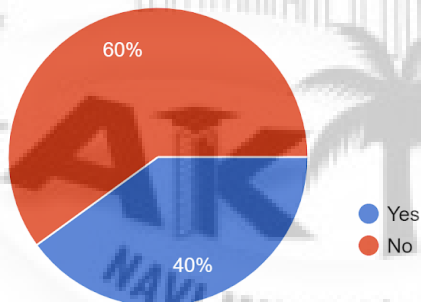
People's Poll

Planning a Human centric it is highly essential to consider different people's point of view before designing

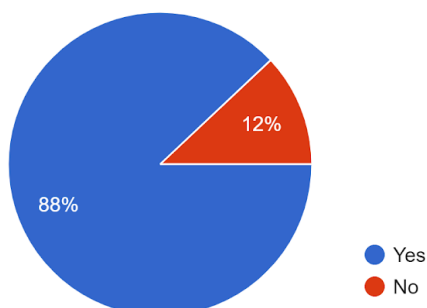
Q Have you or any of your near one's been diagnosed with Cancer?



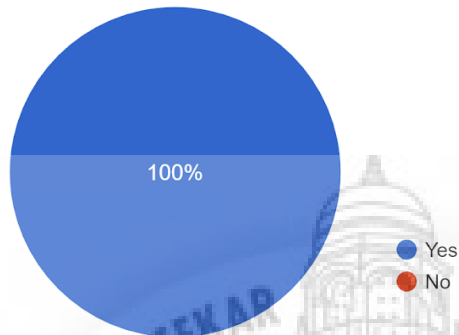
Q Do you feel India is advance enough to cure Cancer and its constantly changing variations?



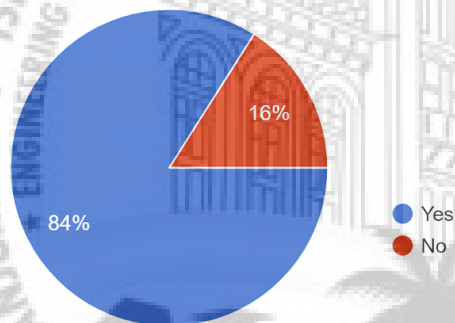
Q Is there a need for Cancer awareness platform ?



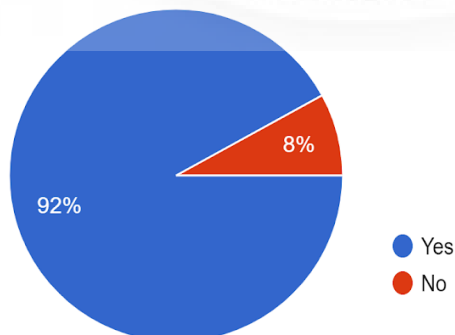
Q Do you feel our surrounding (i.e. Built environment) has an impact on our psychology?



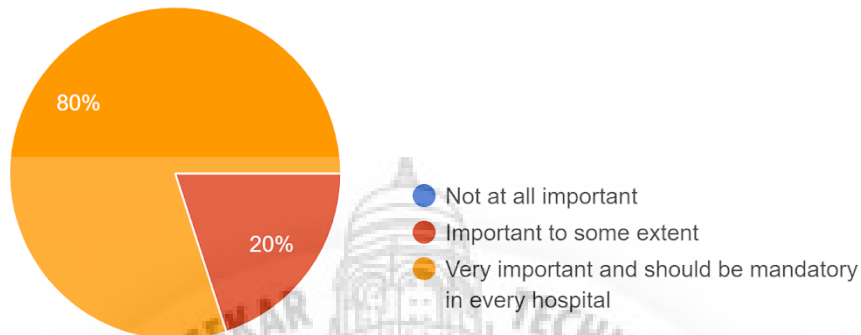
Q Do you feel that the ambience of current medical facility induces fear and anxiety in an individual?



Q Is there a need to merge nature and natural elements within the built- environment of Healthcare facility ?



Q How far is Palliative Care (i.e. providing relief from the symptoms and stress of the illness) important for cure and treatment of Cancer?



Q What suggestions would you like to give that could neutralize or reduce the trauma of a cancer patient ?

- “Spiritual guidance and support would work best”
-Shamreen Shaikh
- “Good medical treatment at minimal expense so that every individual can afford it and get cured from this deadly illness.”
-Dr. Ummehani Ansari
- “Counseling about cancer should be made available to patients at first stage to reduce the trauma.”
-Prashant Hodawadekar
- “A happy and soothing environment for patients to reduce anxiety during cancer treatment.”
-Adiba Syed
- “Being a consultant dietitian I had personally met patients suffering through such life threatening disease. Patients at this stage are just not only physically challenged but are mentally broken too. So it would be a real milestone for us, if we all would just not only treat patients by means of drugs and good diet but also would be able to comfort them mentally by taking proper assessment and consultation.”
- Kausar Tasneem Saquib Shaikh
- “Provide more green area within hospital...nature helps to reduce anxiety.”
- Tanaya Patil

CASE STUDY

Project Selection

Priority of parameters for case study selection:

- Experiential
- Innovation in program
- Context
- Innovation in technology
- Aesthetics and form



Fig 2.1

Name: Champalimaud Centre for the Unknown
Project type: Research Centre
Category: Experiential – Form & Aesthetics



Fig 2.2

Name: Maggie's Centre in Gartnavel
Project type: Rehabilitation Centre
Category: Experiential - Programmatic



Fig 2.3

Name: Maggie's
Project type: Rehab Centre
Category: Experiential - Programmatic



Fig 2.4

Name: Project Chemotherapy Outside
Project type: Medical Facilities
Category: Programmatic Innovation



Fig 2.5

Name: Bhagwan Mahaveer Centre
Project type: Medical Facilities
Category: Form & Aesthetics



Fig 2.6

Name: Livsrums Cancer Counselling Centre
Project type: Health Care Centre
Category: Programmatic Innovation

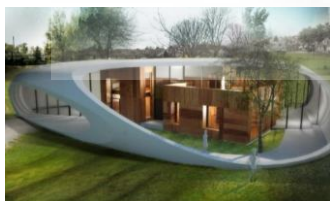


Fig 2.7

Name: Maggie's
Project type: Rehab Centre
Category: Form and aesthetic



Fig 2.8

Name: Maggie's
Project type: Rehab Centre
Category: Material and technology



Fig 2.9

Name: Windhover Contemplative Centre
Project type: Hospitality
Category: Experiential

CHAMPALIMAUD CENTRE FOR THE UNKNOWN

STUDYING THE CONTEXT



Fig2.10 Map showing location

- located in the Belém district of Lisbon, where the Tagus River flows into the Atlantic Ocean.

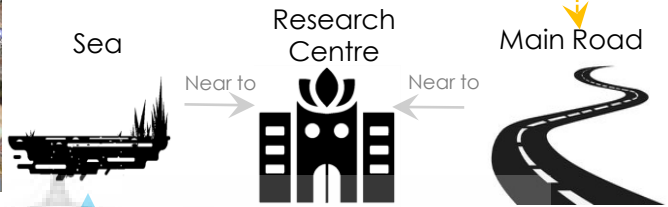


Fig2.11 Context



Fig2.12 Map showing location and proximity



Colégio Bola de Neve (college)



Portugal Dos Pequenos-Execution Of Maquetas, Lda (Lisbon Museum)



Tagus River meeting the Atlantic Ocean

- The project was designed as a research center for people with eye, brain and cancer disease with recreational areas for public participation

Fig2.13 Neighborhood

OPPORTUNITY OF A PROJECT

Situated along the seacoast, having a great historic significance, the port offers **virtues of tourist attraction** and **natural settings favourable for therapeutic architecture.**



Fig2.14 Opprotunities

Open to sky site with a clear city skyline

Historic importance of site inviting more number of tourist

A platform to **showcase works** of great artist and painter

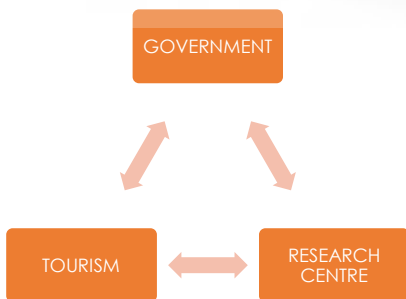


Fig 2.15 Graphical representation of Funding of Champalimund research center

The funding system of Champalimund Research Center works in the following ways:

- The Center in **collaboration with recreational activity** functions which invites large number of **tourist in local, national and international** form of visitors
- This increases the government funding which is used for **betterment of Center and patients** seeking aid there

DESIGN FOCUS



Develop a tourist attraction spot

- To help people grappling with real problems; **cancer, brain damage and going blind**
- Great Portuguese left on their journeys into the unknown—a perfect metaphor for the **discoveries of contemporary science** today
- To **leverage this historical heritage** by creating a link between the discoveries of yesteryear and new scientific research in the fields of neurosciences and oncology.



Developing natural precincts in and around the structure



Commemorate the Portugal sailor.



BRAIN



EYE



CANCER

Catering to major social disease issue and their treatment approach



Develop the waterfront for people's leisure as well as project

DESIGN PROCESS



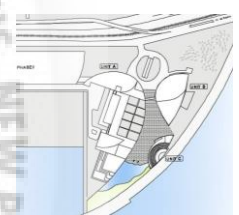
Formation of 2 arc with relation to site (Ying-Yang)



Breaking of arc

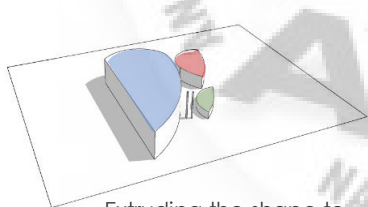


Allotting functions within the arc

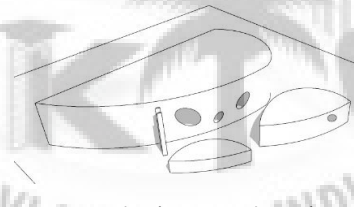


Final form with the function incorporated

Fig2.16 Design Focus

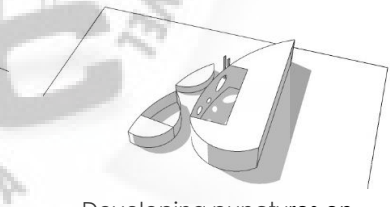


Extruding the shape to develop **massing in form**

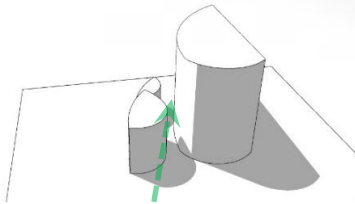


Developing punctures in the form surface to **allow penetration of light**

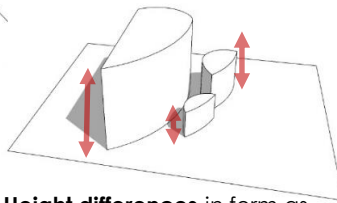
These voids are above human eye level to **maintain privacy**



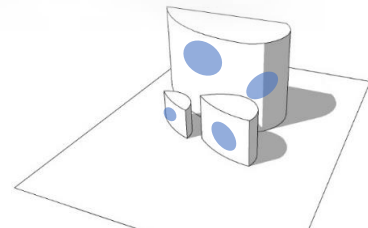
Developing punctures on roof for **open to sky experience**



Formation of axis which directs visitors directly to the sea further



Height differences in form as per their function and to avoid visual obstruction



Voids in elliptical shape to merge with the organic language of the form

Fig2.17 Massing and Process

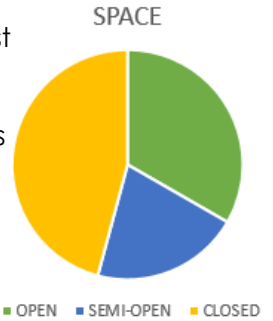
CASE STUDY

PROGRAMATIC INNOVATION

| OPEN SPACE | SEMI OPEN SPACE | CLOSED SPACE |
|------------------|-----------------|-------------------|
| SUNKEN GARDEN | RECEPTION | TREATMENT |
| INFUSION GARDEN | WAITING | DOCTORS |
| AMBULANCE ENTRY | RESTAURANT | VIVARIUM |
| AUDITORIUM FOYER | BAR | ADMINISTRATION |
| EXHIBITION AREA | GLASS BRIDGE | LIBRARY |
| AMPHITHEATRE | | SERVICE YARD |
| PLAZA | | KITCHEN |
| TERRACE GARDEN | | LABS |
| | | MEETING ROOM |
| | | FOUNDATION OFFICE |

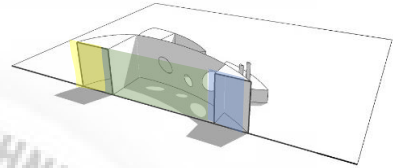
Table 2.1 Space program for Champalimaud Center

The project consist of maximum amount of closed space for patients treatment and moderate open spaces with least amount of semi-open space

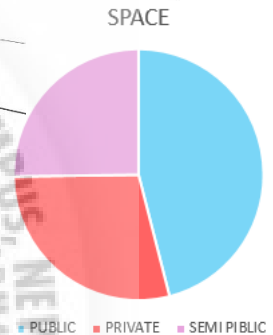


Zoning showing types of space

Conceptual longitudinal section showing space distribution and porosity



Conceptual transverse section showing space distribution and porosity

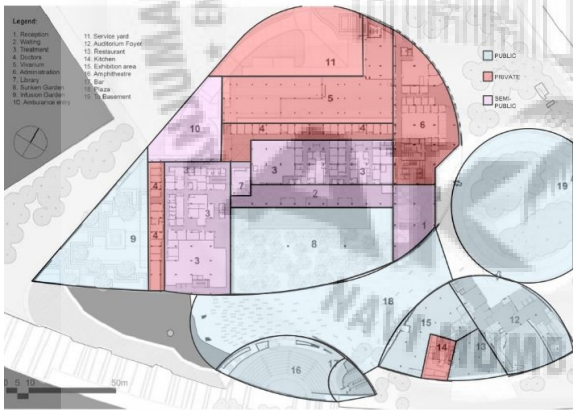


PRIVATE USER - staff of institution

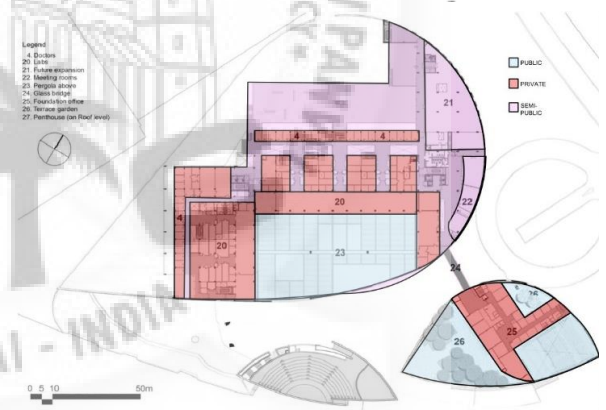
SEMI PUBLIC USER - people seeking treatment (patients)

PUBLIC USER - people in city

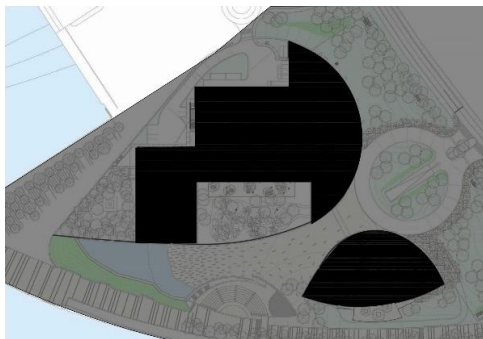
The structure shares a large amount of public spaces with the city



Ground Floor zoning showing quality of spaces



First Floor zoning showing quality of spaces



Built unbuilt mapping

The built to unbuilt ratio clearly shows the **minimum usage of site** and more of unbuilt spaces to emphasis on emptiness for mental relaxation



Fig2.18 Programmatic innovation

SOCIAL IMPACT



Building a **sense of belonging** to the Portugal history



Growth in economy through tourism leading to more **development in surrounding area**



Contemporary approach to Portugal architecture



Green intervention leading to a better quality of life

QUALITY OF SPACES

Fig2.19 Social impact



The enigmatic sky — the **ultimate Unknown**.



A piece of **architecture, sculpture, beauty and therapy**



Use nature as therapy. The **water** around, the **sky** above, and the healing presence of **rain forests**.



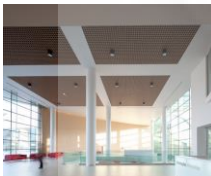
It mirrors modernity in its purest **expression** and most beautiful **form**



The **glazed facade** towards the inner sunken garden provides a large amount of daylight to the interior



The **sources of light are hidden** wherever possible to convey discretion



The interior comprises of **minimum use of colorful elements**. **White** is mostly seen as it soothes the user group



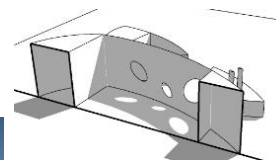
50% of the site has been given back to the city of Lisbon for its citizens to **celebrate that history by merging with it**

DESIGN CLUES

Fig2.20 Views of Project



Unobstructed pathways and axis to guide user through forms

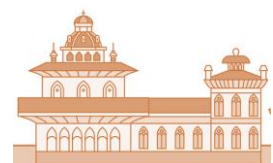


Contemporary style approach to **merge with local context**

Scale variation to emphasize on colossal effect of form



Open and closed **space enclosed** in closed space



LIVSRUM CANCER COUNSELLING CENTER

STUDYING THE CONTEXT

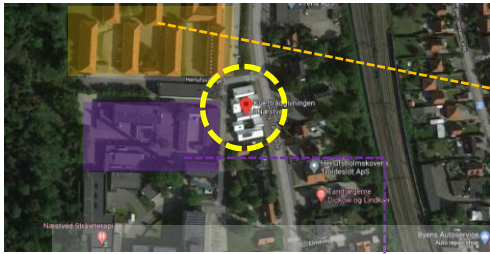


Fig2.21 Map showing location

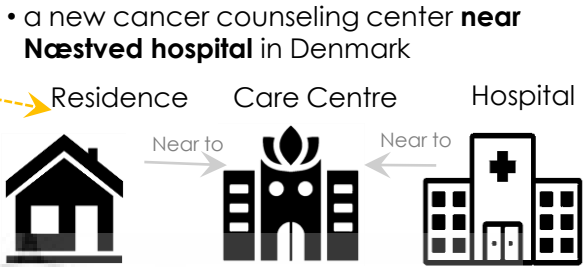


Fig2.22 Context

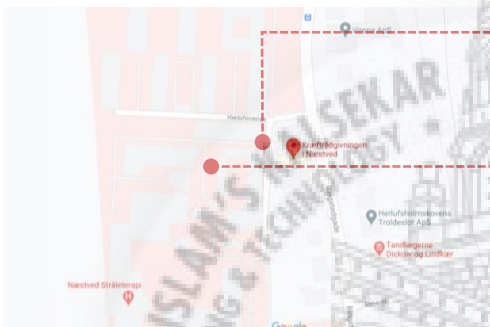
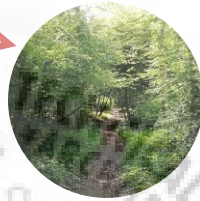


Fig2.23 Map showing location and proximity

- The project is located in the vicinity of **healthcare block** near the **residential plots** and presence of **green space**.



Herlufsholm hundeskov (park)



Næstved Hospital



Byens Fitness

OPPORTUNITY OF A PROJECT



Nearby **hospital** can provide **healthcare aid and facility** to visitors

Nearby **green space** provides a **soothing and relaxing aura** for patients.

Nearby **residence** will have a drop in facility for **people seeking psychological aid**

Fig2.24 Opprotunities

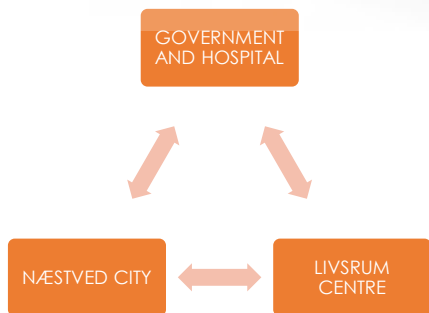


Fig 2.25 Graphical representation of Funding of Livsrum centre

The funding system of Livsrum center works in the following ways:

- The city **pays tax** to the government
- The government **funds** the Livsrum Care Centre **for its construction and maintenance**
- **Hospital** too funds the center to some extent and in turn the center provides **rehabilitation and counselling** for the patient
- The Centre provides **a walk in facility for people** seeking psychological assistance or who wish to volunteer for cancer care cause.
- The Centre also **adds to the architectural quality** of city increasing the number of **tourism demand**

DESIGN FOCUS

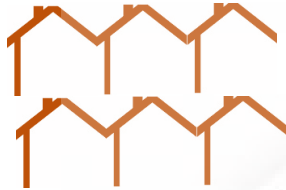


Raise information about cancer

- New **cancer counselling** center is designed as a cluster of seven small houses.
- Similar to monasteries the careful layout features **interlocking rooms** that wrap around two central courtyards
- One where you **sit and meditate** in silence and one that promotes **physical activity and social interaction**



Care and cure in built-environment



Merging with the context



Explore alternate therapy alternatives for cancer cure

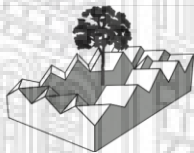


Seek financial help through NGO



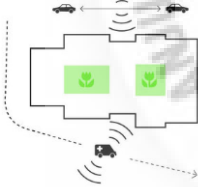
Palliative care for Cancer affected people

DESIGN PROCESS

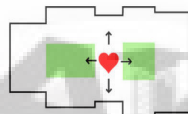


Program such as a library, kitchen, conversation rooms, lounge, shops, gym, and wellness facilities.

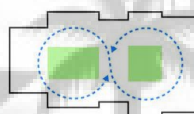
- To **serve and care** the cancer patient through built space
- To strike a tone in which **wellbeing and openness** is at play.



Noise protected outdoor space



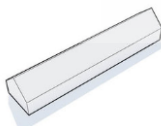
Central living space which forms a interactive circulation space



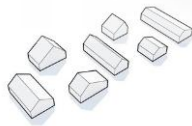
Livrum (living space) placed centrally and other rooms facing it



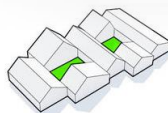
Space for every one where of any age group for counselling, privacy, recreation or therapy



Massing requirement of 800 sq mt of space



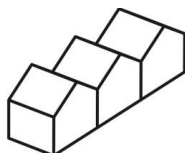
Breaking down the form



A sense of community through courtyard



Schematic section showing homely and interactive environment rather than an isolated and insulated one



Form development showing pitched roof with variation used to merge with residential context and stand out as well

Fig2.27 Massing and Process

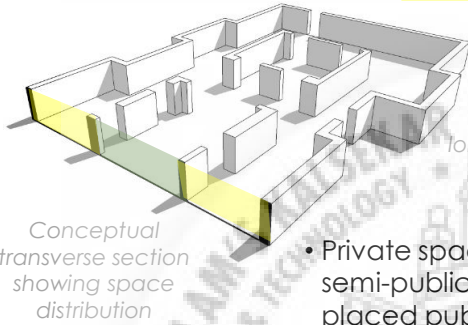
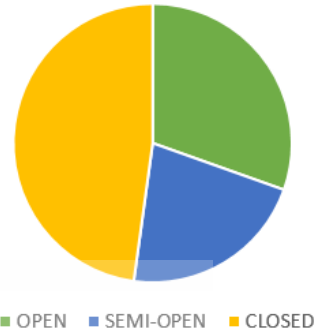
PROGRAMATIC INNOVATION

| OPEN SPACE | SEMI OPEN SPACE | CLOSED SPACE |
|-----------------|-----------------|-------------------|
| ENTRANCE | OPEN OFFICE | CONVERSATION ROOM |
| INFO POINT | STAFF ENTRANCE | OFFICE |
| COMMUNAL SPACE | WORKSHOP | STAFFROOM |
| LOUNGE | LIBRARY | STORAGE |
| ACTIVITY GARDEN | GROUP ROOM | COUNSELLING ROOM |
| SENSORY GARDEN | | WORKOUT ROOM |
| HALLWAY | | SHOWER AREA |
| | | DRESSING ROOM |
| | | TECHNICAL UTILITY |
| | | CLEANING ROOM |
| | | TOILET |

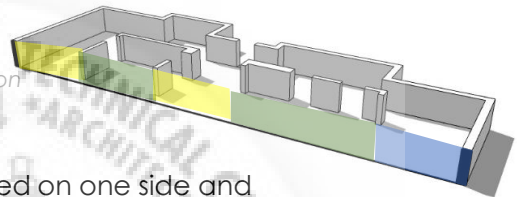
Table 2.2 Space program for Livsrum Centre

- The amount of closed spaces are more as compared to other, used for counselling and private session
- Open spaces are centrally placed

SPACE



Conceptual longitudinal section showing space distribution



- Private spaces are placed on one side and semi-public space on other side and centrally placed public space



Ground Floor zoning showing quality of spaces



PUBLIC USER- people in city

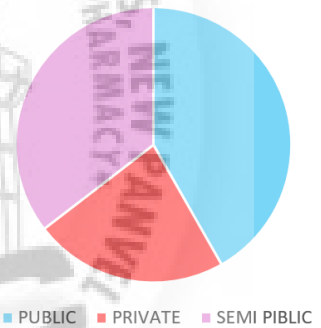


SEMI PUBLIC USER- cancer patient and relatives seeking psychological aid



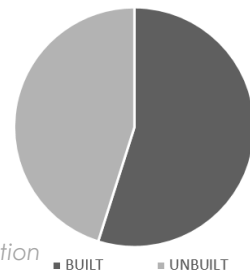
PRIVATE USER- staff of institution

SPACE



Built unbuilt mapping around site

FIGURE-GROUND



Built unbuilt on site

- With respect to surrounding area the design intervention collectively has nearly **35-40% of built area** and the surrounding **green spaces** ensures **adequate amount of air flow on site**
- Built space is more than 50% on site which makes the structure look more bulky

Fig2.28 Programmatic innovation

CASE STUDY

SOCIAL IMPACT



Adding on to **Architectural style** and space perception



Neutralizing and humanizing hospital environment



Adding on to **recreational zone** in city



Way finding for people suffering from cancer could be easier

QUALITY OF SPACES

Fig2.29 Social impact



The material used for façade contrast with the natural background of the structure. Also the dynamic form of irregular pitched roof makes it more attractive among the local context.



Wall openings with niches and nooks to optimize the use of space. The fenestration wall used for storage as well as seating. The openings are created such that they provide a visual frame to portray the outside activity.



Outward appearance of a house with openings that portray regular household activity happening inside.



Workout space flooded with sunlight and visually connected with central courtyard.



Courtyard with human activity and connectivity of other spaces to it. Also the vegetation introduced within the space makes it more natural.



Gathering spaces or dining hall where people could gather and interact are made more active with the presence of sunlight.



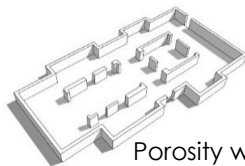
Building with own unique architectural character that clearly distinguishes it from the surrounding hospital buildings.



Penetration of sunlight through voids in roof.

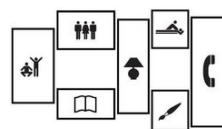
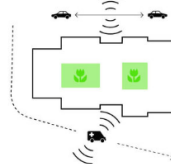
DESIGN CLUES

Fig2.30 Views of Project



Porosity within the structure

Responding to the context with apt solution



Program such as a library, kitchen, conversation rooms, lounge, shops, gym, and wellness facilities for wellness.

The strategic location of windows allow privacy, openness and flow of light within the structure.



BHAGWAN MAHAVEER CANCER HOSPITAL AND RESEARCH CENTRE

STUDYING THE CONTEXT



Fig2.31 Map showing location

- located at Jaipur, Rajasthan near commercially active zones

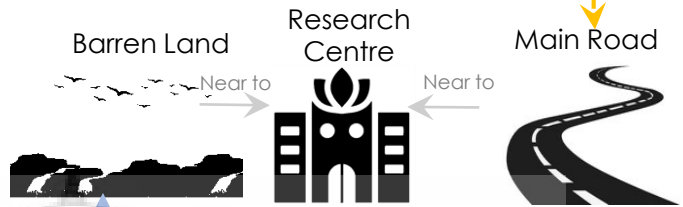


Fig2.32 Context



Fig2.33 Map showing location and proximity



Red Fox Hotel



Jawaharlal Nehru Marg, Jaipur



Oriental Bank of Commerce

- The project was designed as an attempt to serve the city and surrounding holistically specially the **cancer affected people**

To reflect levels of knowledge and sensitivity that culminate in excellence of patient care

OPPORTUNITY OF A PROJECT



Fig2.34 Opprotunities

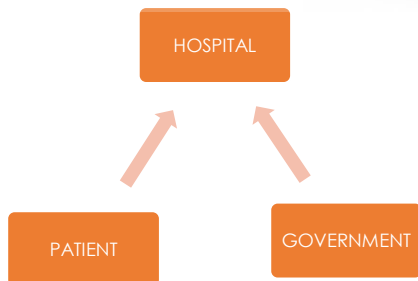


Fig 2.35 Graphical representation of Funding of Mahaveer research centre

- The funding system of Bhagwan Mahaveer Research Center works in the following ways:
- With the **funding of government and payment done by patients** the hospital runs and carry out its daily maintenance and activities smoothly

CASE STUDY

DESIGN FOCUS



Develop a soothing environment

- To reflect levels of knowledge and sensitivity that culminate in excellence of patient care, in terms of both the body and the mind
- incorporating technologies and approaches to diagnosis, treatment planning and therapy that are currently relevant, but are capable of change and expansion in the future.

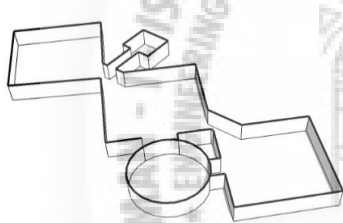


Adapting passive design strategy as per climate

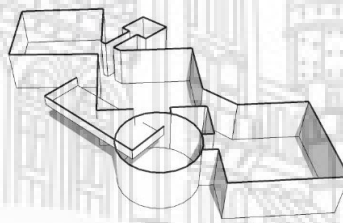


Merging with the local context Fig2.36 Design Focus

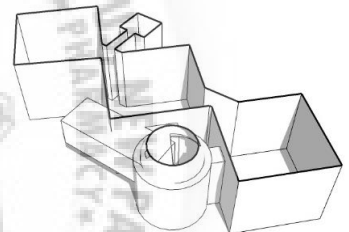
DESIGN PROCESS



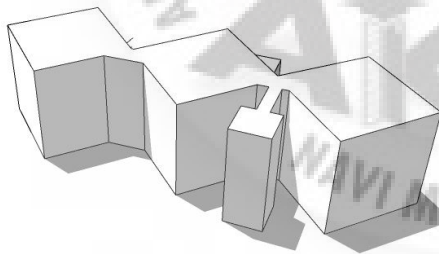
Internal spaces at lower floors



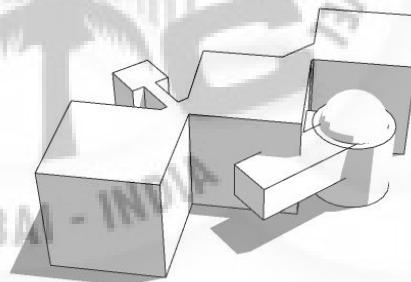
Internal spaces at middle floors



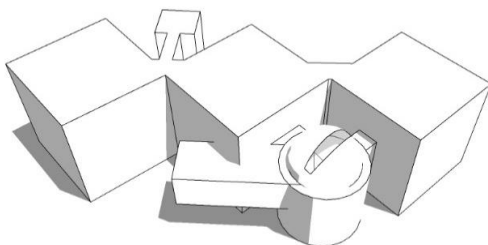
Internal spaces at upper floors



Rare side view of form



Front side view of form



Bird-eye side view of form

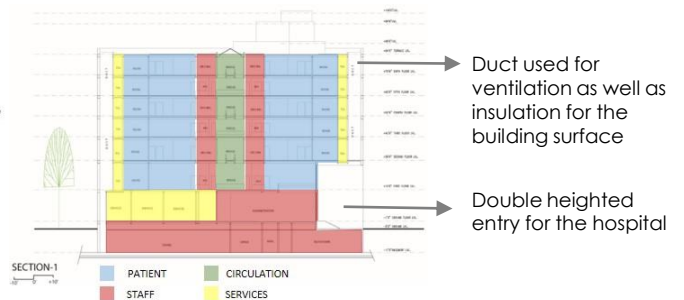


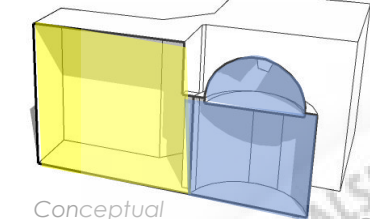
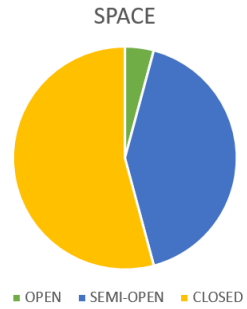
Fig2.37 Massing and Process

PROGRAMATIC INNOVATION

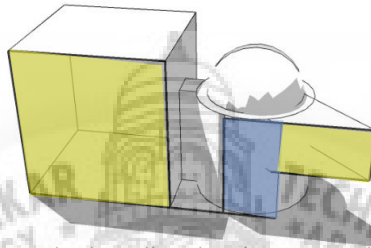
| OPEN SPACE | SEMI OPEN SPACE | CLOSED SPACE |
|------------|---------------------------|--------------------|
| TERRACE | LOADING-UNLOADING | BLOOD BANK |
| | MANIFOLD | STORES |
| | RECEIVING PURCHASE | LOCKERS |
| | RECEPTION | SERVICE ROOM |
| | WAITING AREA | LABORATORIES |
| | PHYSICAL AND MEDICAL REHA | IMAGING |
| | CAFETERIA | RADIATION THERAPY |
| | REGISTRATION | STAFF AREA |
| | COFFE SHOP | KITCHEN |
| | WARDS | PHARMACY |
| | | OPERATION THERATRE |
| | | HDU |
| | | ICU |

Table 2.3 Space program for Bhagwan Mahaveer Centre

• The project consist of maximum amount of closed space for patients treatment and moderate semi-open spaces with least amount of open space



Conceptual section showing space distribution

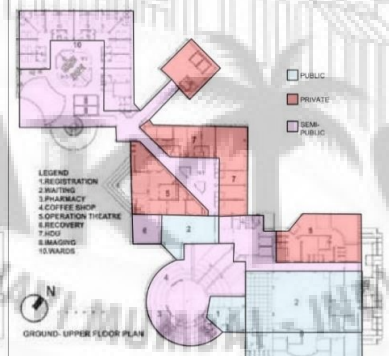
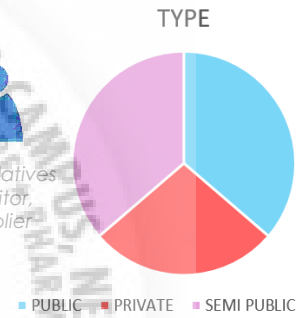


Conceptual section showing space distribution

• Section shows the use of dome for sunlight penetration and interconnectivity between the spaces



• The private spaces are centrally placed, whereas the semi public and public spaces are placed at periphery for easy access and circulation



Floor plan zoning showing quality of spaces



Built unbuilt mapping

• The built to unbuilt ratio clearly shows the **minimum usage of site** and more of unbuilt spaces left for site circulation and future expansion



Fig2.38 Programmatic innovation

SOCIAL IMPACT



Provide services to city and neighborhood



Raise awareness and sense of caution towards disease among people

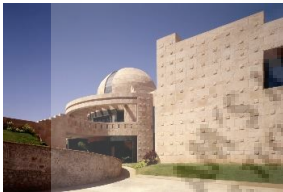


Contemporary approach to Indian architecture



Green intervention leading to a better quality of life

QUALITY OF SPACES



Use of **curve and linear surface** to create a visually appealing entry within the hospital.



The exterior with its interplay of huge stone walls and intersecting planes; the complex geometry, the **traditional 'red' and 'beige' desert sand stones** that are textured and juxtaposed into the overall composition and above all the play of light and shade, each echo in timeless association.



Large heavy walls exposed to the sun and glass openings for natural light to penetrate in the interior spaces.



Fig2.39 Social impact
This **'feeling' of familiarity** with its surroundings is carried through into the interiors with the creation of multiple 'courtyard' spaces that gently filter diffused light into the circulation and waiting areas.



Light is drawn through a fascinating **array of skylights** into the multiple out-patient courts, from the **ribbon of light** that pours through the observatory-like dome, to the sixteen sculptured skylights of the main OPD. Light becomes ethereal as it gleams through tiny shafts (reminiscent of the temples) and generates a sublime and tranquil environment.



The architect used a truly innovative way of **facilitating visitor movement**. "The problem of language/signage systems was completely solved when we used the passion for color that is the hallmark of Rajasthan into simple color-coded pathways. The traditional Chaurashta of **radiating streets**, coupled with colour coding, **resolved and made the process of path-finding effortless**."

DESIGN CLUES

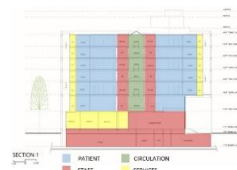


Separation of high voltage consuming area from other area

Intersection of forms to develop **transitional spaces**



Fig2.40 Views of Project



Symmetrical and user specific **circulation**

Skylight to **emphasize on a space**



PROJECT CHEMOTHERAPY OUTSIDE

STUDYING THE CONTEXT

- Tergooi Hospital in Hilversum where patients with cancer can serve their chemotherapy in the open air.

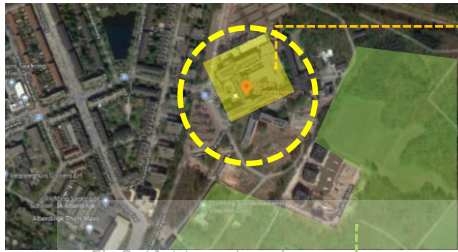


Fig2.41 Map showing location



Nature reserve



Chemotuin

Near to

Near to



Hospital

Fig2.42 Context



Fig2.43 Map showing location and proximity



Tergooi General Hospital



Gooi Nature Reserve



Verpleeghuis Gooiers Erf ()Nursing Agency

- For the tergooi hospital, which is directly adjacent to the Gooi's nature reserve, it is the first time the park-like setting is used for health care purposes.

OPPORTUNITY OF A PROJECT

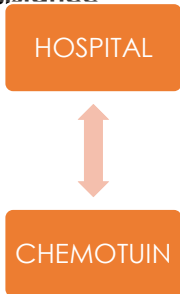


Near by hospital to cater to **immediate assistance**

Using nature's **power to heal**

Adding on to the **local biodiversity**

Fig2.44 Opprotunities



The funding system of Project Chemotherapy Outside works in the following ways:

- It is **completely funded by hospital authority** to start up with such a type of project
- The hospital finances the construction and maintenance cost of the structure with in turn **serves as an extension for care** and rehabilitation facility

Fig. 2.45 Graphical representation of Funding of Chemotuin

DESIGN FOCUS



Nature inclusive concept

- The pavilion is designed according to a **nature-inclusive concept**.
- Apart from normal user wishes, we also looked at the role of the pavilion in the prospect of **increasing biodiversity on the hospital grounds**.
- The pavilion is conceived as an extension of this area, a new **'home' for the local flora and fauna**



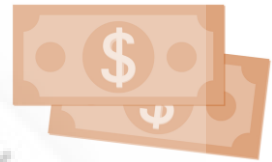
Inviting the local flora and fauna



A soothing and natural healthcare environment

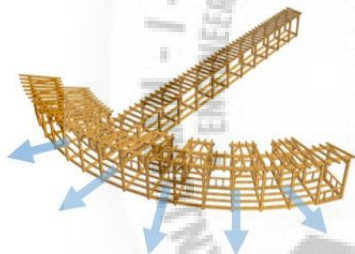


Planned plantation around structure

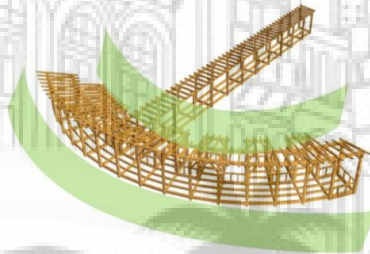


Cost effective project

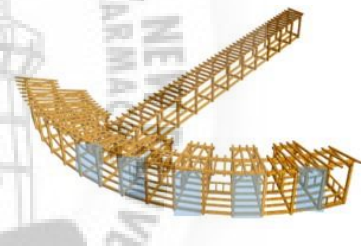
DESIGN PROCESS



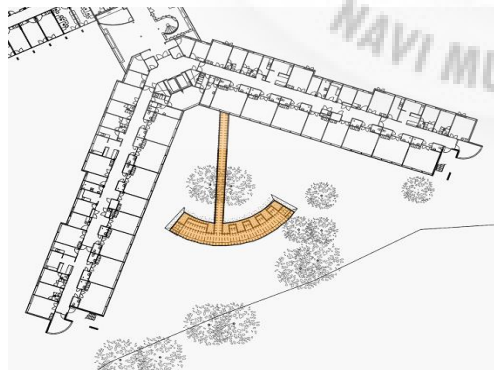
Visually connected to the surrounding space



Collaborate with the green space



Privacy through providing individual compartments



Placement of canopy as per building form



Linear form arrangement



Formation of arc to acquire more area

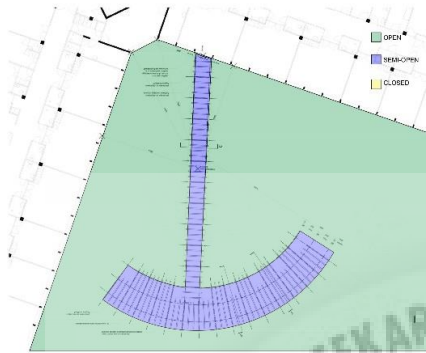
Placement of structure according to natural vegetation in order to retain and merge with it.

Fig2.47 Massing and Process

CASE STUDY

PROGRAMATIC INNOVATION

| | | |
|------------|----------------------------|--------------|
| OPEN SPACE | SEMI OPEN SPACE | CLOSED SPACE |
| --- | PASSAGE PRIVATE SEATING | --- |



Zoning Plan showing types of space



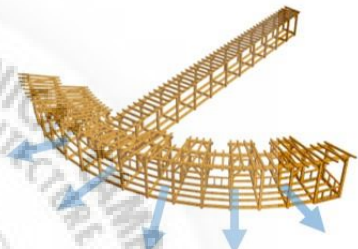
PRIVATE USER-



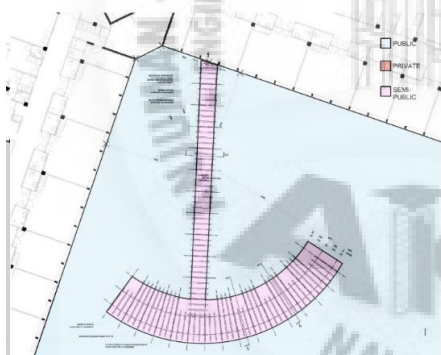
SEMI PUBLIC USER-
people seeking
treatment (patients)



PUBLIC USER-
nearby hospital
staff and patients

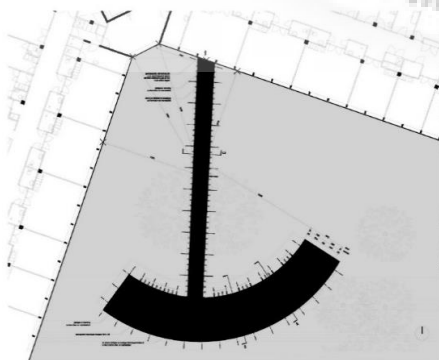


Openness attain through pergola
and creating form for structure



Zoning plan showing quality of spaces

- The quality of space is majorly divided between **public and semi public areas** with no private space
- Quality of space here defines the **aim of having openness in structure**



Built unbuilt mapping

- The built to unbuilt ratio clearly shows the **minimum usage of site** and more of unbuilt spaces to emphasis on green spaces and natural environment surrounding the spaces



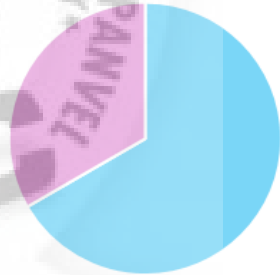
■ BUILT = UNBUILT

SPACE



■ OPEN ■ SEMI-OPEN ■ CLOSED

TYPE



■ PUBLIC ■ PRIVATE ■ SEMI PUBLIC

Fig.2.48 Programmatic innovation

CASE STUDY

SOCIAL IMPACT



Rather than having an **inert environment the hospital** would develop an outdoor playful environment



Openness within the structure would **develop communication** between people



Help to **break the monotony of closed space** medical treatment

QUALITY OF SPACES

Fig2.49 Social impact



Axis formed by the pathway



Curved to maximize area



Embankment encloses several seating areas that offer a view of the surrounding forest edge



Individual compartments formed to maintain privacy for patient



Flower bed and shrub partition between each compartment.



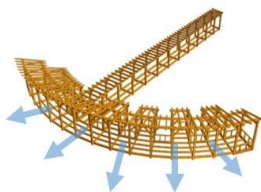
The pavilion consists of an oak structure with a glass roof and is placed on an ascending earthen wall.



The combination of the wall and the plants makes the places to stay readable as outdoor spaces surrounded by nature

DESIGN CLUES

Fig2.50 Views of Project



Openness through creating frame

Derived from urban social spaces



Extension of a healthcare institute to distribute work load

Material usage to merge with the context



INNOVATION IN CONSTRUCTION AND TECHNOLOGY

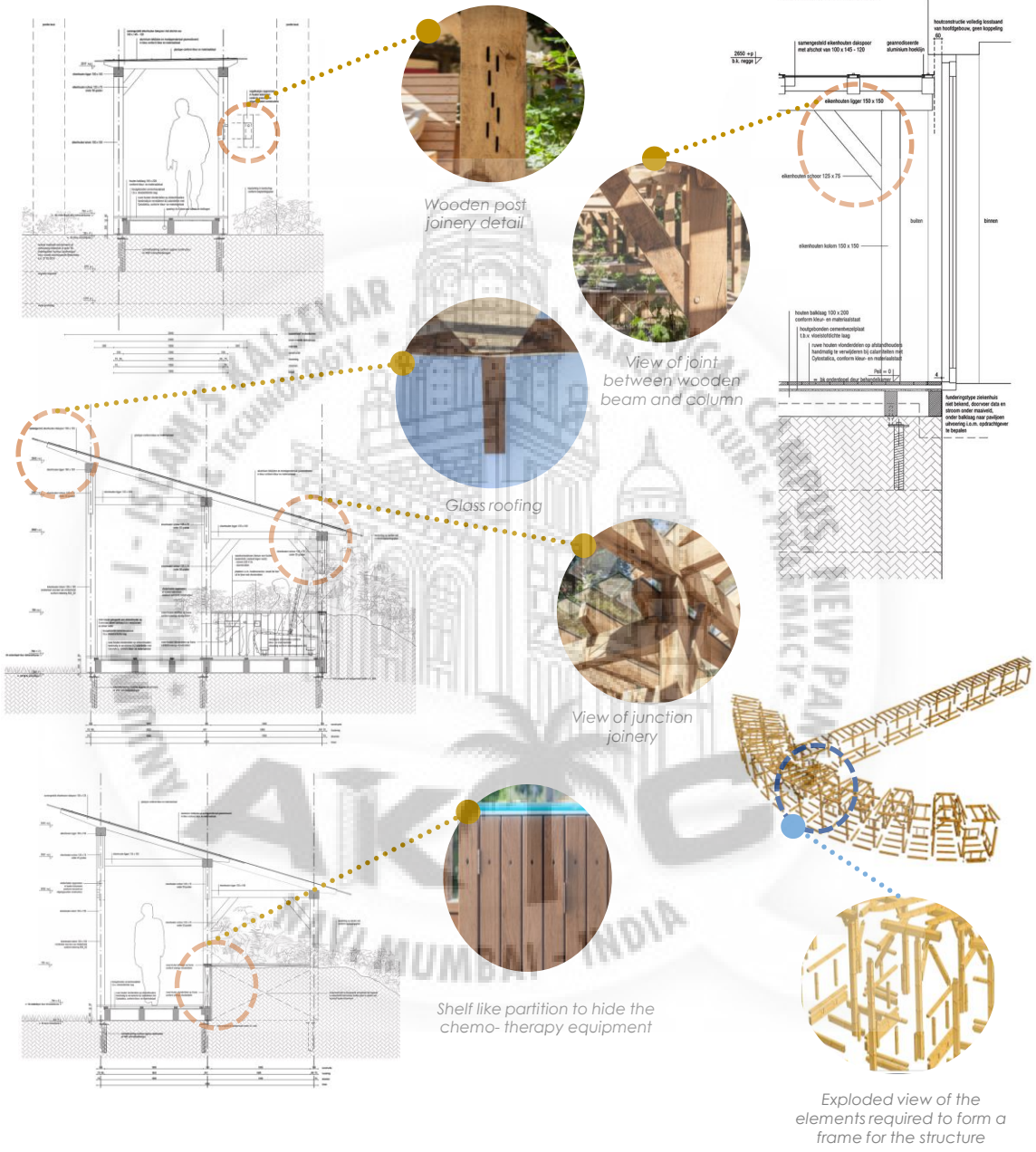


Fig2.50.1 Construction innovation

MAGGIE'S CANCER CARING CENTRE

STUDYING THE CONTEXT



Fig2.51 Map showing location

• At the southern boundary of Foresterhill at the edge of the Westburn field.

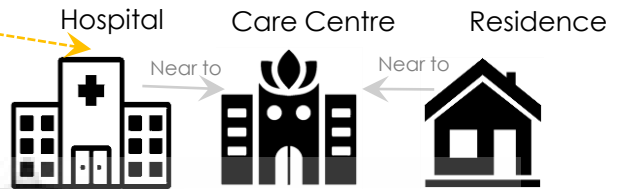


Fig2.52 Context

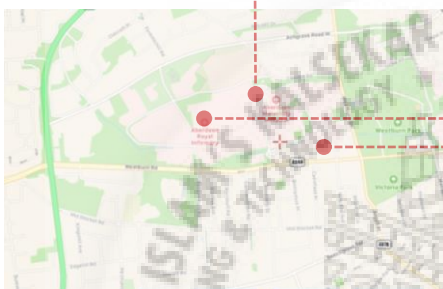


Fig2.58 Map showing location and proximity



Suttie Centre for Teaching & Learning in Healthcare



Royal Aberdeen Children's Hospital



Aberdeen Blood Donor Centre

• The project is located in the vicinity of **healthcare block** near the **residential plots** and presence of **green space**.

OPPORTUNITY OF A PROJECT



Nearby **residence** will have a drop in facility for **people seeking psychological aid**

Nearby **hospital** can **provide healthcare aid and facility** to visitors

Nearby **green space** provides a **soothing and relaxing aura** for patients.

Fig2.54 Opportunities

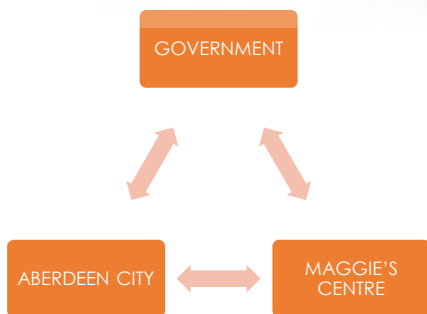


Fig. 2.55 Graphical representation of Funding of Maggie centre

- The funding system of Maggie center works in the following ways:
- The city **pays tax** to the government
- The government **funds** the Maggie Care Centre **for its construction and maintenance**
- The Centre provides **a walk in facility for people** seeking psychological assistance or who wish to volunteer for cancer care cause.
- The Centre also **adds to the architectural quality** of city increasing the number of **tourism demand**

DESIGN FOCUS



Care and cure in built-environment

- mixture of a warm interior of furnishing embraced by a protective shell strikes just the right balance for Maggie's
- place where individuals can meet, connect and receive help and guidance.
- ideal environment for people facing cancer in the region to gain support, also greatly contributing to architecture within the region



Palliative care for Cancer affected people



Talk about cancer and its experience



Raise information about cancer



Seek financial help through NGO



Explore alternate therapy alternatives for cancer cure

DESIGN PROCESS

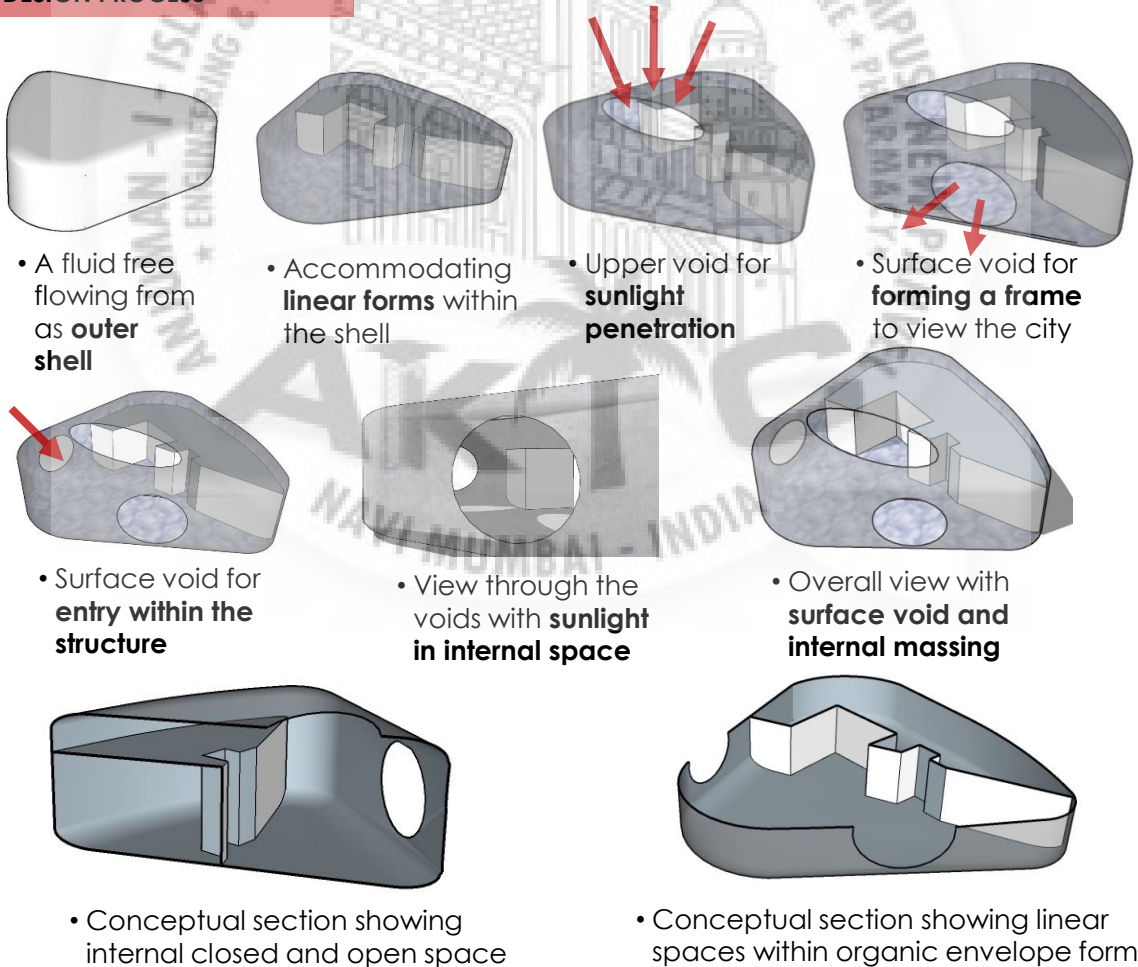


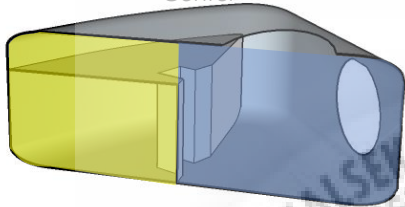
Fig2.56 Design Focus

Fig2.57 Massing and Process

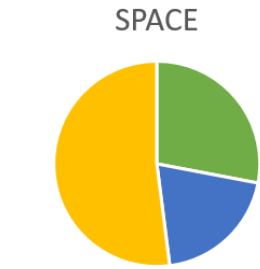
PROGRAMATIC INNOVATION

| OPEN SPACE | SEMI OPEN SPACE | CLOSED SPACE |
|------------------------|-----------------|----------------------|
| OUTDOOR PATIO | DINING AREA | COUNCELING |
| TERRACE | LOBBY | LIBRARY |
| GRASS MEADOW | WELCOME AREA | SERVICE CUPBOARD |
| GRASS LAWN | WINDOW SEAT | WORKING SPACE |
| MAGGIE'S INTENT GARDEN | GROUP ROOM | ACCESSIBLE UNISEX WC |
| STABLIZED GRAVEL | | WC |
| HEDGE | | SERVICE YARD |

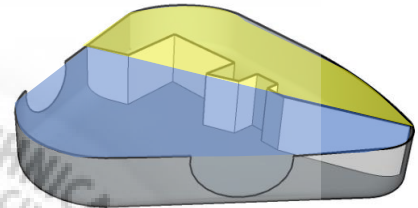
Table 2.5 Space program for Maggie Center



Conceptual longitudinal section showing space distribution

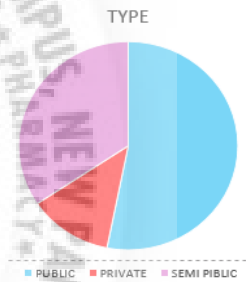


■ OPEN ■ SEMI-OPEN ■ CLOSED

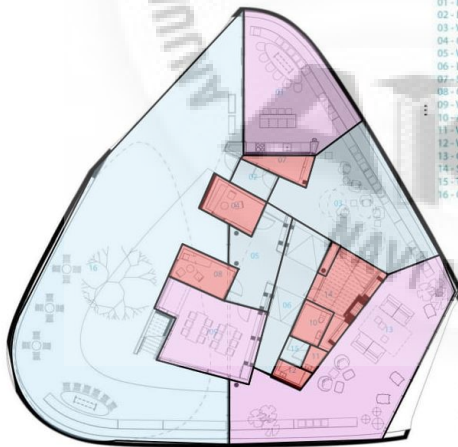


Conceptual transverse section showing space distribution

- The semi-open spaces are wrapped in a **external organic form** of envelope, and the **voids on the surface** enables the semi-open characteristics in the space
- The distribution of space is **more for public** use which could be freely used by **city locals**, the **semi-public** spaces describe places used specifically by **cancer affected people** or their relatives and **private** spaces are precisely **for institute's staff use**

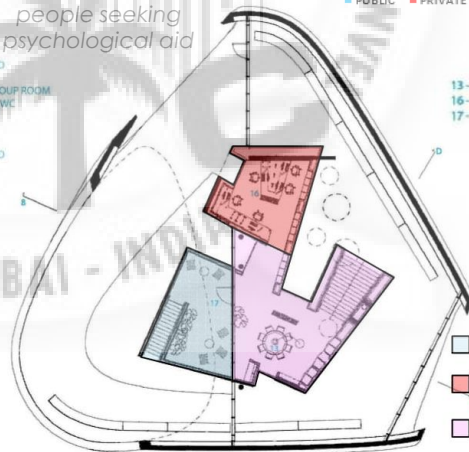


■ PUBLIC ■ PRIVATE ■ SEMI PUBLIC



- 01 - DINING AREA
- 02 - LOBBY
- 03 - WELCOME AREA
- 04 - COUNCELING
- 05 - WINDOW SEATS
- 06 - LIBRARY
- 07 - SERVICES CUPBOARD
- 08 - COUNCELING
- 09 - WORKING SPACE GROUP ROOM
- 10 - ACCESSIBLE UNISEX WC
- 11 - WC
- 12 - WC
- 13 - GROUP ROOM
- 14 - SERVICES CUPBOARD
- 15 - TOILETS LOBBY
- 16 - OUTDOOR PATH

■ PUBLIC
■ PRIVATE
■ SEMI-PUBLIC



- 13 - GROUP ROOM
- 16 - WORKING SPACE
- 17 - TERRACE

■ PUBLIC
■ PRIVATE
■ SEMI-PUBLIC

VOLUME

- The built to unbuilt ratio clearly shows the **maximum usage of site** and the form developed from the site boundaries itself



■ BUILT ■ UNBUILT

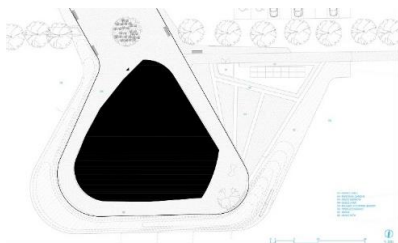


Fig2.58 Programmatic innovation

CASE STUDY

SOCIAL IMPACT



Way finding for people suffering from cancer could be easier



Mental well-being through built spaces could improve



Tourism and popularity of area would increase



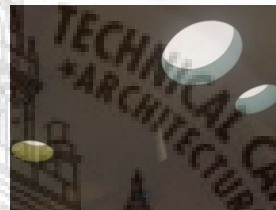
Architectural style and space perception around the area would change

QUALITY OF SPACES

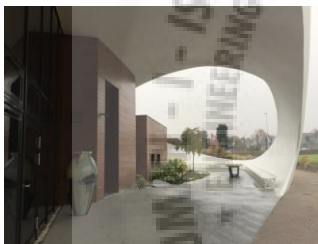
Fig2.59 Social impact



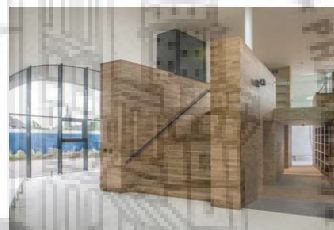
Space that is **homely and full of warmth**



Skylight providing **source for natural light** in a pleasant way



Envelope forming a **transitional space** between indoors and outdoors.



There's an **open door policy**, so anyone can come to a center at anytime



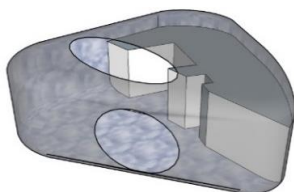
Seating style running along the curved wall **traverses a variety of environments and atmospheres**, including the lively kitchen



The '**membrane**', which is simultaneously soft and hard, creates an open yet **intimate area between** its curved concrete walls and the timber and glass of the interior

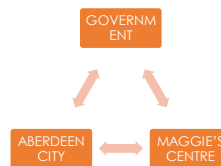
DESIGN CLUES

Fig2.60 Views of Project



Formation of **transition space** which is inward but well connected to outward features

Setting space rules through designing



Public and government initiative to start up a self sufficient institute

Potential of green element to complement and emphasize a structure



MAGGIE'S CANCER CARING CENTRE

STUDYING THE CONTEXT

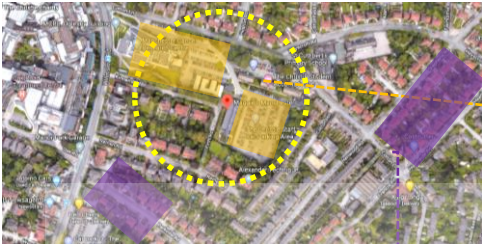


Fig2.61 Map showing location

- short walk from The Christie Hospital and its leading oncology unit

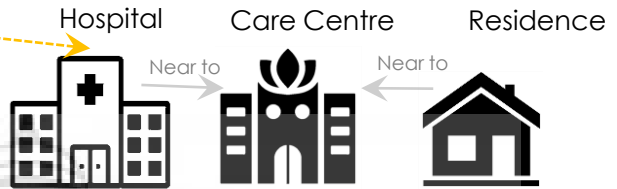


Fig2.62 Context

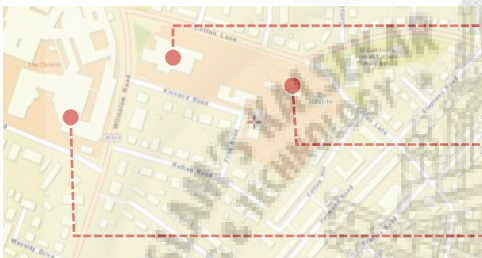


Fig2.63 Map showing location and proximity



- The project is located in the vicinity of **healthcare block** near the **residential plots**

OPPORTUNITY OF A PROJECT



Fig2.64 Opprotunities

Parking lots in the vicinity could be utilized and the **project cost** could be **minimized** with reduction in parking facility

Nearby **hospital** can **provide healthcare aid and facility** to visitors

Nearby **residence** will have a drop in facility for **people seeking psychological aid**

- The funding system of Maggie center works in the following ways:
 - The city **pays tax** to the government
 - Due t the architects personal interest in the project some funds were raised by the firm itself
 - The government **funds** the Maggie Care Centre **for its construction and maintenance**
 - The Centre provides **a walk in facility for people** seeking psychological assistance or who wish to volunteer for cancer care cause.
 - The Centre also **adds to the architectural quality** of city increasing the number of **tourism demand**

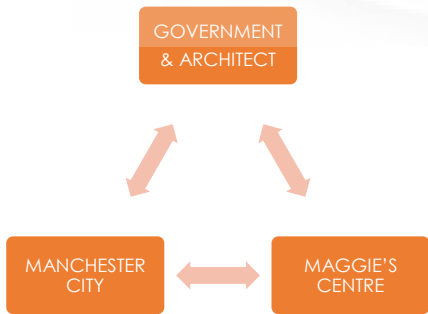


Fig 2.65 Graphical representation of Funding of Maggie centre

DESIGN FOCUS



Care and cure in built-environment

- **home away from home**
- **a place of refuge** where people affected by cancer can find emotional and practical support
- **focus on** natural light, **greenery** and garden views.
- great value upon the **power of architecture** to lift the spirits and help in the process of therapy.



Palliative care for Cancer affected people



Talk about cancer and its experience



Raise information about cancer



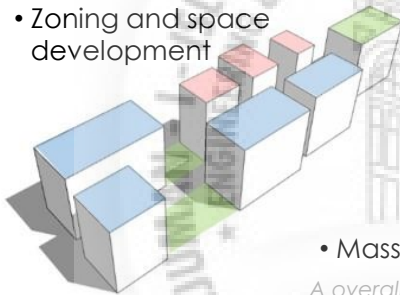
Seek financial help through NGO



Cozy home-like environment away from home

DESIGN PROCESS

- Zoning and space development



Distribution of small private spaces and large public spaces with green patches between them

- Column at exterior periphery

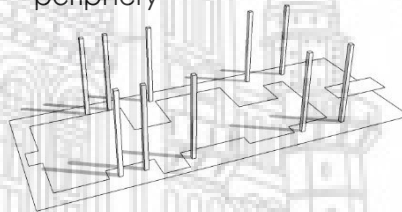
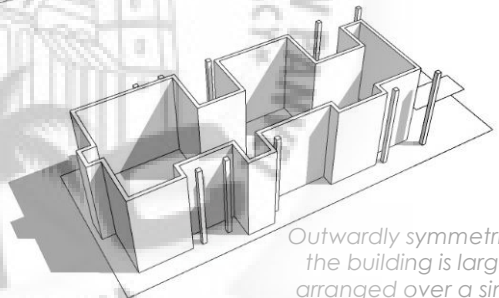


Fig2.66 Design Focus

Columns placed at the edge to support the overhang and makes an invisible boundary for the space

- Massing

A overall cuboidal form with subtraction of mass forming smaller courtyard and addition of form which functions as core activity area of the project



Outwardly symmetrical, the building is largely arranged over a single storey to match the scale of its neighbors

- Porosity through form

Smaller pockets formed between the closed spaces for porosity

- Block addition

Addition of block detached to the area but merges with form sharing the same plinth

The block is given a cockpit type shape and is used as green house garden space

- Porosity through material usage

Attaining porosity through material by use of glass and wooden bracing instead of panel

Fig2.67 Massing and Process

CASE STUDY

PROGRAMATIC INNOVATION

| OPEN SPACE | SEMI OPEN SPACE | CLOSED SPACE |
|------------|-----------------|--------------------|
| ENTRANCE | KITCHEN | COCKPIT GREENHOUSE |
| GARDEN | SITTING ROOM | CONSULTATION |
| | COURT | ACTIVITY ROOM |
| | | MEZZANINE |

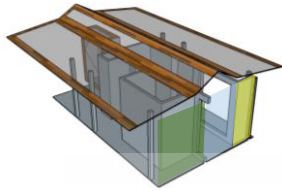
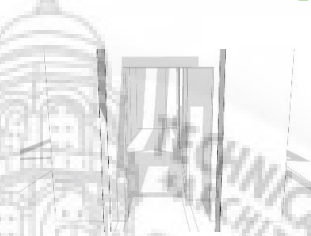


Table 2.6 Space program for Maggie Center

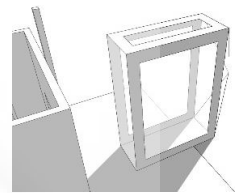
Conceptual section along shorter surface showing space distribution



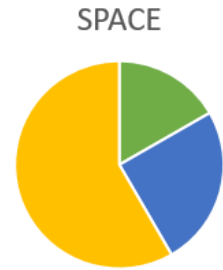
Conceptual section along longer surface showing space distribution



Sunlight in internal corridor



Green house garden block exposed to sun for sufficient sunlight penetration



■ OPEN ■ SEMI-OPEN ■ CLOSED

- The distribution of space is more for public use which could be freely used by city locals, the semi-public spaces describe places used specifically by cancer affected people or their relatives and private spaces are precisely for institute's staff use

SPACE



■ PUBLIC ■ PRIVATE ■ SEMI PUBLIC



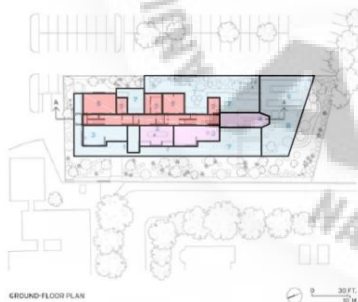
PUBLIC USER- people in city



PRIVATE USER- staff of institution

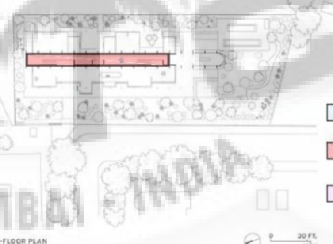


SEMI PUBLIC USER- people seeking psychological aid



GROUND-FLOOR PLAN

■ PUBLIC
■ PRIVATE
■ SEMI-PUBLIC

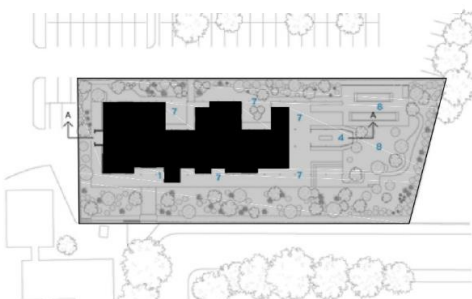


MEZZANINE-FLOOR PLAN

■ PUBLIC
■ PRIVATE
■ SEMI-PUBLIC

- 1 ENTRANCE
- 2 KITCHEN
- 3 SITTING ROOM
- 4 "COCKPIT" GREENHOUSE
- 5 CONSULTATION/ACTIVITY ROOM
- 6 MEZZANINE
- 7 COURT
- 8 GARDEN

- 1 ENTRANCE
- 2 KITCHEN
- 3 SITTING ROOM
- 4 "COCKPIT" GREENHOUSE
- 5 CONSULTATION/ACTIVITY ROOM
- 6 MEZZANINE
- 7 COURT
- 8 GARDEN



- The built to unbuilt ratio clearly shows the optimum usage of site and the form developed is linear with smaller pockets creating courtyards

VOLUME



■ BUILT ■ UNBUILT

Fig2.68 Programmatic innovation

CASE STUDY

SOCIAL IMPACT



Way finding for people suffering from cancer could be easier



Insertion of green patches within grey city space



Tourism and popularity of area would increase



Architectural style and space perception around the area would change

Fig2.69 Social impact

QUALITY OF SPACES



Visually dissolving the architecture into the surrounding gardens.



Throughout the building there is a focus on natural light, greenery and views



Extends to embrace a greenhouse – a celebration of light and nature – which provides a garden retreat



Establish a domestic atmosphere in a garden setting



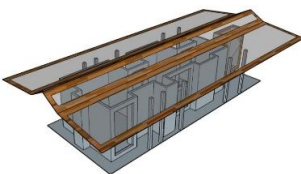
Maintaining natural visual connections across the building.



Space that is homely and full of warmth

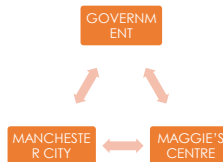
Fig2.70 Views of Project

DESIGN CLUES



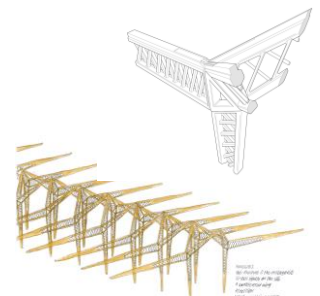
Utilizing form to bring porosity in the structure with insertion of green space

Setting space rules through designing (no sign boards)



Public and government initiative to start up a self sufficient institute

Potential of material to fulfil the space concept



WINDHOVER CONTEMPLATIVE CENTER

STUDYING THE CONTEXT



Fig2.71 Map showing location

- on the campus of Stanford University

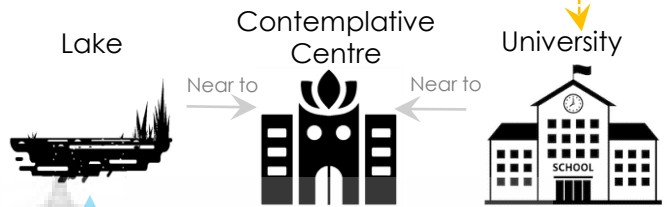


Fig2.72 Context

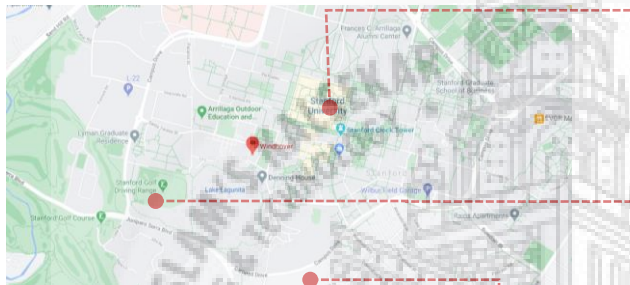
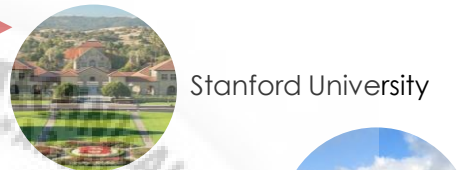
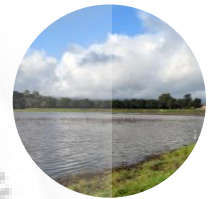


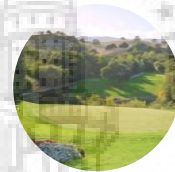
Fig2.73 Map showing location and proximity



Stanford University



Lake Lagunita Stanford



Stanford Golf Driving Range

- The project has **many recreational spots** both natural and man-made therefore the designer initiated a **new typology** with unusual vision.

OPPORTUNITY OF A PROJECT

Recognizing the need on campus for a space for students to relieve stress and gain a greater perspective of one's life and the world in general

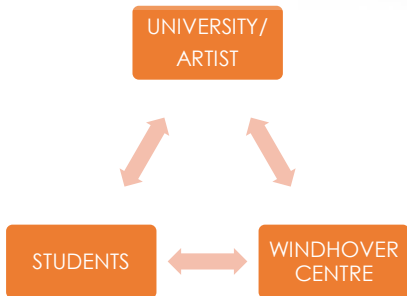
Fig2.74 Opportunities



A soulful retreat for **nearby university students**

An opportunity to merge natural and built spaces to **provide serenity for user**

A platform to **showcase works** of great artist and painter



The funding system of Maggie center works in the following ways:

- With a vision of showcasing his work in a place other than museum, **artist Nathan Oliveira funded the construction of the center**
- **Partial funding** and maintenance was done by university
- The center serves as a **retreat for the university students** as well as a **memorial for the artist's work**

Fig 2.75 Graphical representation of Funding of Windhover Centre

DESIGN FOCUS



Spiritually uplifting spaces



Recognizing platform for artist



Evoking the senses



Use of natural material (rammed earth, wood)



Add on for recreational space in campus



Explore alternate to relax mind

- Combining the characteristics of a **spiritual sanctuary, an art gallery, and a contemplative garden**, the designers have created a unique typology for contemplation and reflection
- to evoke the **feeling of flight and detachment** from the everyday

DESIGN PROCESS

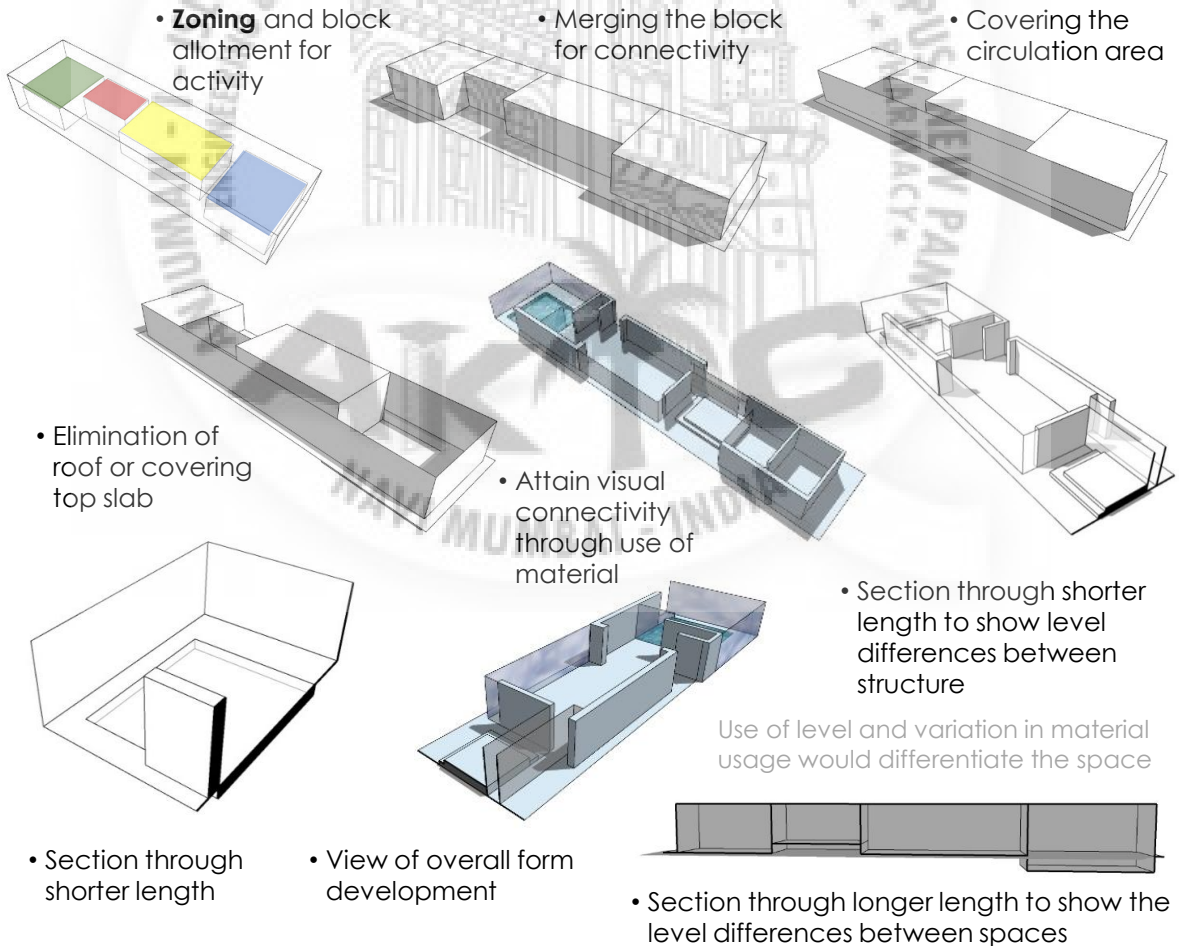


Fig2.76 Design Focus

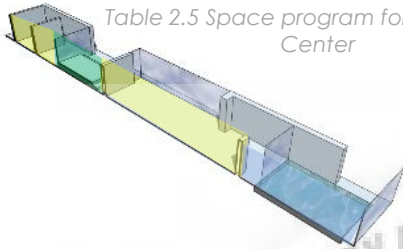
Fig2.77 Massing and Process

CASE STUDY

PROGRAMATIC INNOVATION

| OPEN SPACE | SEMI OPEN SPACE | CLOSED SPACE |
|--------------|-----------------|----------------|
| ENTRANCE | ENTRY GALLERY | INFO/COAT ROOM |
| COURTYARD | SOUTH GALLERY | PANTRY |
| WATER GARDEN | BRIDGE | ELECTRICAL |
| LABYRINTH | NORTH GALLERY | MECHANICAL |
| | | RESTROOM |

Table 2.5 Space program for Windhover Center

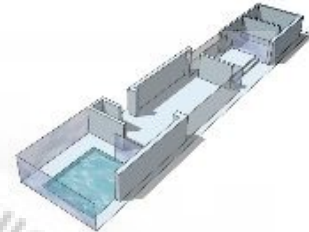


Conceptual longitudinal section showing space distribution with level variation

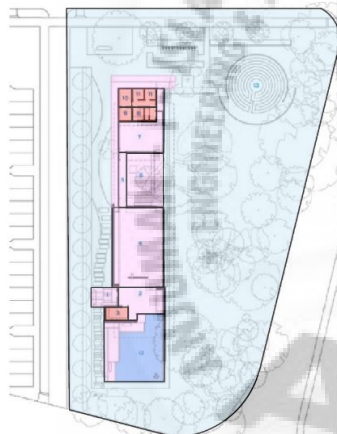


■ OPEN ■ SEMI-OPEN ■ CLOSED

- The connectivity between the spaces is attain through **physical or visual connectivity**
- The open spaces are **directly connected to the nearby garden**



Conceptual view showing space distribution



FLOOR PLAN 0 20 FT. 0 M.

- ENTRANCE
- ENTRY GALLERY
- INFO/COAT ROOM
- SOUTH GALLERY
- BRIDGE
- COURTYARD
- NORTH GALLERY
- PANTRY
- ELECTRICAL
- MECHANICAL
- RESTROOM
- WATER GARDEN
- LABYRINTH

- PUBLIC
- PRIVATE
- SEMI-PUBLIC



PRIVATE USER - staff of institution

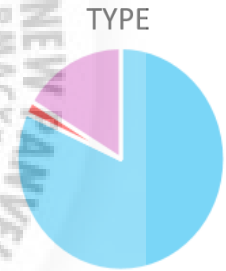


SEMI PUBLIC USER - people seeking psychological aid



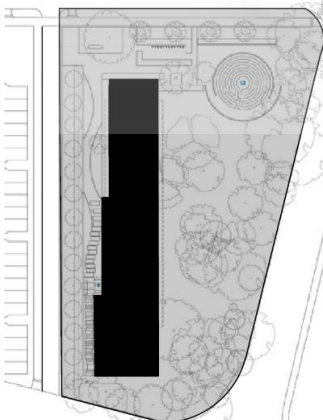
PUBLIC USER - people in city

- The distribution of space is **more for public use** which could be freely used by **city locals**, the **semi-public** spaces describe specifically by **students of Stanford University** and **private** spaces are precisely for **institute's staff use**



TYPE

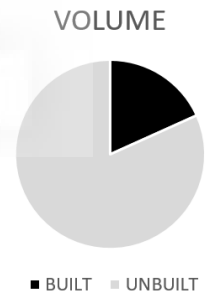
■ PUBLIC ■ PRIVATE ■ SEMI PUBLIC



FLOOR PLAN 0 20 FT. 0 M.



Internal view of structure with transparent and opaque walls



VOLUME

■ BUILT ■ UNBUILT

- The built to unbuilt ratio clearly shows the **minimum usage of site** and maximum landscape to merge the structure with existing context.

Fig2.78 Programmatic innovation

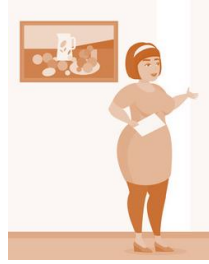
SOCIAL IMPACT



Allows one to concentrate and increase focusing power



Enhances the experience of seclusion



One can reflect over the presented artwork



Art, architecture and nature under one roof would influence future infrastructure

QUALITY OF SPACES

Fig2.79 Social impact



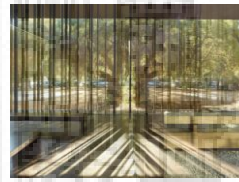
Provides a refuge from the intensity of daily life and a space for **quiet reflection**



The extended progression to the sanctuary's entry allows visitors to **shed the outside world before entering.**



Fountains within the building and the adjacent courtyard provide **ambient sound,**



Private garden sheltered from its surroundings by a **line of tall bamboo**



Within, the space opens to the oak glade beyond while **louvered skylights wash the paintings**



Rammed earth walls, wood surfaces, and water heighten the visitor's sensory experience **acoustically, tactilely, olfactory, and visually.**



Courtyards coupled with the **expansive glass wall** to the east, allow visitors to view the paintings



Benches and cushions are strategically placed to allow visitors to quietly view both the paintings and landscape

DESIGN CLUES

Fig2.80 Views of Project



Manage **light and shadow** to **emphasize** a space from other

Space segregation through walls **no door system**



UNIVERSITY/ARTIST

















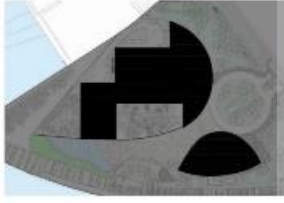
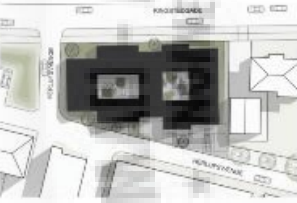

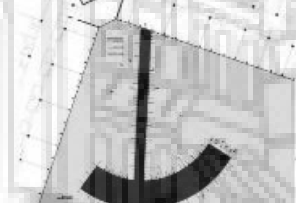

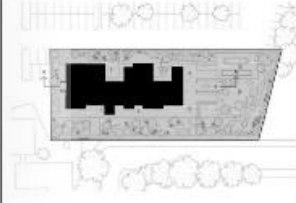
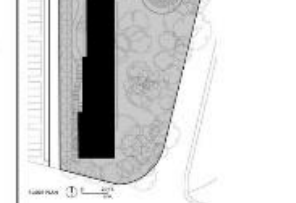







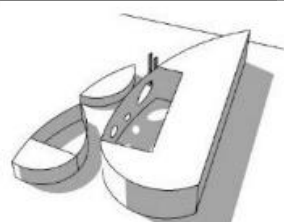
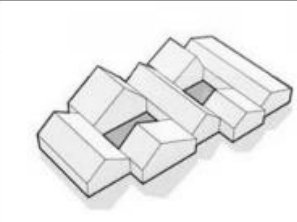
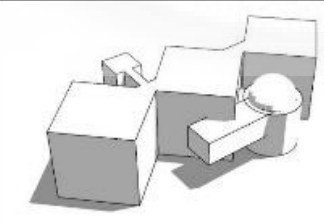
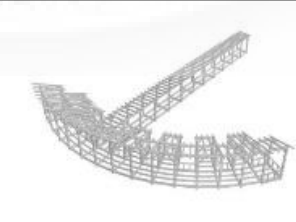
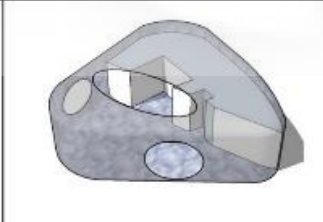
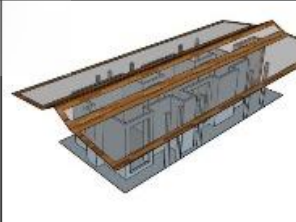
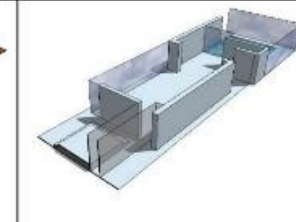
STUDENTS




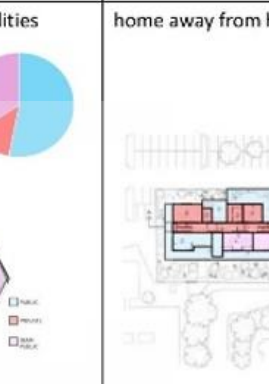
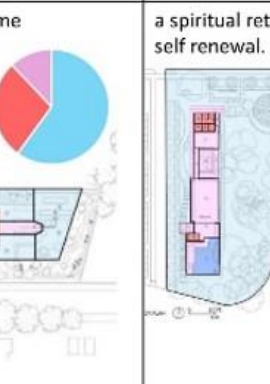

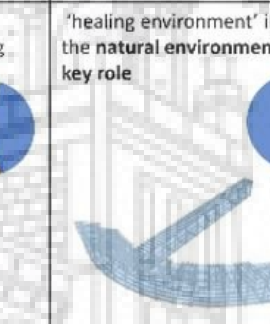
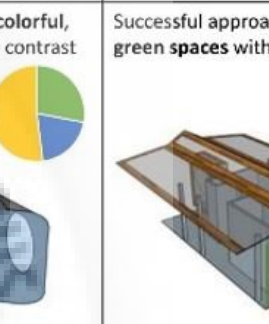












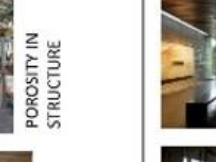

WINDHOVER CENTRE

Involvement of **fund raising body (artist)**

Amalgamation of light, water, wind, trees and earth



| CASE STUDY | CHAMPALIMAUD CENTRE FOR THE UNKNOWN | LIVSRUM CANCER COUNSELLING CENTER | MAHAVEER CANCER HOSPITAL AND RESEARCH CENTRE | PROJECT CHEMOTHERAPY OUTSIDE | MAGGIE'S CANCER CARING CENTRE | MAGGIE'S CANCER CARING CENTRE | WINDHOVER CONTEMPLATIVE CENTER |
|----------------------|---|--|---|---|---|--|--|
| SELECTION PURPOSE | Contextual | Programmatic innovation | Form and aesthetic | Programmatic innovation | Form and aesthetic | Material and technology | Experiential |
| PROJECT VIEW |  |  |  |  |  |  |  |
| CONTEXT AND LOCATION | Lisbon, Portugal/ where the river meets the Atlantic Ocean, is steeped in history  | Næstved, Denmark/ Near Næstved hospital in Denmark  | Jaipur, Rajasthan/ Adjacent to main road, commercial zone nearby  | Hilversum, The Netherlands/ in the vicinity of Tergooi Hospital  | Aberdeen, Scotland / short distance from Forester Hill Hospital  | Manchester, UK / short walk from The Christie Hospital  | Stanford, USA / Situated in Stanford university campus  |
| YEAR / PROJECT AREA | 2004/ 50000 m ²  ■ BUILT ■ UNBUILT | 2013/ 800 m ²  | 2001/ 13940 m ²  | 2015/ 196 m ²  | 2013/ 350 m ²  | 2016 / 730m ²  | 2014/ 370m ²  |
| LAW AND FUNDING |  |  |  |  |  |  |  |
| USER | PRIMARY: Institute staff SECONDARY: patient and researcher TERTIARY: City local, tourist | PRIMARY: Institute staff SECONDARY: Cancer affected researcher TERTIARY: City locals | PRIMARY: Hospital staff SECONDARY: Patient TERTIARY: Visitors, Relatives, Locals | PRIMARY: Hospital staff SECONDARY: Chemo- patients TERTIARY: Other patient, flora fauna | PRIMARY: Institute staff SECONDARY: Cancer patient and relatives TERTIARY: City locals | PRIMARY: Institute staff SECONDARY: Cancer patient and relatives TERTIARY: City locals | PRIMARY: Maintenance staff SECONDARY: Students TERTIARY: City locals |
| FORM DEVELOPMENT |  |  |  |  |  |  |  |

| CASE STUDY | CHAMPALIMAUD CENTRE FOR THE UNKNOWN | LIVSRUM CANCER COUNSELLING CENTER | MAHAVEER CANCER HOSPITAL AND RESEARCH CENTRE | PROJECT CHEMOTHERAPY OUTSIDE | MAGGIE'S CANCER CARING CENTRE | MAGGIE'S CANCER CARING CENTRE | WINDHOVER CONTEMPLATIVE CENTER |
|--|--|---|---|--|---|---|---|
| SPACE PROGRAM & SPACE TYPE | Aim of multidisciplinary research center is to leverage this historical heritage  | interlocking rooms that wrap around two central courtyards  | to address the Mind of the Patient, not only the Body  | pavilion where patients with cancer can serve their chemotherapy in the open air.  | a network of drop-in facilities  | home away from home  | a spiritual retreat to promote self renewal.  |
| QUALITY OF SPACES | Nature, water, sky and rainforest as main elements in the space  | a wide range of different rooms for informal advice, therapy and interaction with a focus on the users' comfort and wellbeing  | Circulation segregation Huge stone wall with intersecting plane Play of light and shadow  | 'healing environment' in which the natural environment plays a key role  | Homey, light-filled, and colorful, the center is a deliberate contrast to the hospital  | Successful approach of inserting green spaces within the structure  | to promote and inspire personal renewal. chapel-like center provides a refuge from the intensity of daily life and a space for quiet reflection.  |
| ARCHITECT & DESIGN PHILOSOPHY | Charles Correa Associates/ Architecture as Sculpture. Architecture as Beauty. Beauty as therapy  OPEN TO SKY  YING-YANG FORM | EFFEKT Architects/ Each unit has its own specific function and together they form a coherent sequence of spaces and functions  WHITE & SKYLIGHT  OPTIMIZE SPACE USAGE | Malik Architects/ providing a comprehensive 'cancer' cover for the entire state of Rajasthan  MATERIAL AS GUIDE  GEOMETRIC FORM AND PLANE | VANDERSALM-aim/ it is the first time the park-like setting is used for health care purposes.  AXIS FORMATION  SURFACE OPENNESS | Snøhetta/ not a treatment center, but a place where individuals can revive the spirit of living  CREATE FRAME  ORGANIC MEETS LINEAR | Foster + Partners/ establish a domestic atmosphere in a garden setting  POROSITY IN STRUCTURE  FRAME REPETITION | Aidin Darling Design/ promote personal well-being through art, nature and architecture  SCALE & SILENCE  TRANSPARENCY & OPACITY |
| STRENGTH | <ul style="list-style-type: none"> • Site location inviting city locals and tourist • Form and onsite available material • Colour used for project • Controlled artificial and natural light | <ul style="list-style-type: none"> • Collaboration of society • Importance to post- treatment therapy • Having positive social and economical impact | <ul style="list-style-type: none"> • Addressing the vernacular population of the region • Use of forms and plane • Develop contemporary style of architecture • Natural light access in interior space | <ul style="list-style-type: none"> • Open visually and physically • Sufficient light & ventilation • Material merging from the surrounding context • Flora and fauna inviting | <ul style="list-style-type: none"> • Linear form incorporated in organic one • Strategic opening placement • Initiative to combine government, city and targeted user | <ul style="list-style-type: none"> • Linear form with openness reflected through form and material • Insertion of green spaces • Initiative to combine government, city and targeted user | <ul style="list-style-type: none"> • Add on to recreation zone in university • Platform for artist to get recognized • Natural material merging with natural settings |
| WEAKNESS | <ul style="list-style-type: none"> • Long travel distance • Common entry for tourist ,hospital staff, patients | <ul style="list-style-type: none"> • No medicinal therapy involved • No provision for critical condition of patient | <ul style="list-style-type: none"> • Less scope for recreational • To emphasize on a space other spaces are left shaded • Long passages and irregular shape of rooms | <ul style="list-style-type: none"> • No protection from rain and other foreign interruptions • No inclusivity feature • Not applicable for all hospitals | <ul style="list-style-type: none"> • No accessible approach • Lack of multi age group facility • No direct addressing for therapy | <ul style="list-style-type: none"> • No accessible approach • Lack of multi age group facility • No direct addressing for therapy | <ul style="list-style-type: none"> • Physically open space can invite unwanted nuisance • Extreme cold would effect the glass and other material used |

Design clues

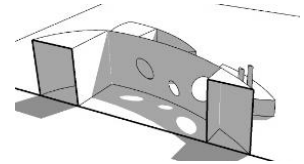
CHAMPALIMAUD CENTRE FOR THE UNKNOWN



Scale variation to emphasize on colossal effect of form



Unobstructed pathways and axis to guide user through forms



Open and closed **space enclosed** in closed space



Fenestration shape and level

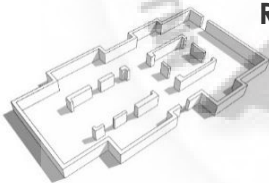


Contemporary style approach to **merge with local context**



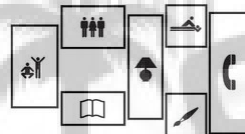
Camouflage the column

LIVSRUM CANCER COUNSELLING CENTER



Porosity within the structure

Responding to the context with apt solution



Program such as a **library, kitchen, conversation rooms, lounge, shops, gym, and wellness facilities** for wellness



Should **not be always open**

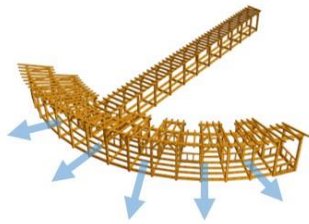
The **strategic location of windows** allow privacy, openness and flow of light within the structure



Color & optimize space use

CASE STUDY

PROJECT CHEMOTHERAPY OUTSIDE



Openness through creating frame

Derived from urban social spaces

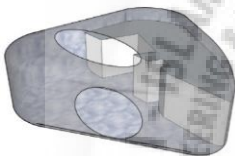


Extension of a healthcare institute to distribute work load

Material usage to merge with the context



MAGGIE'S CANCER CARING CENTRE



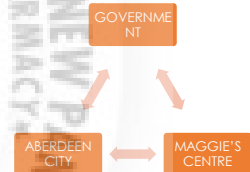
Formation of **transition space** which is inward but well connected to outward features

Setting space rules through designing



Thin concrete envelope over wooden linear block

Public and government initiative to start up a self sufficient institute

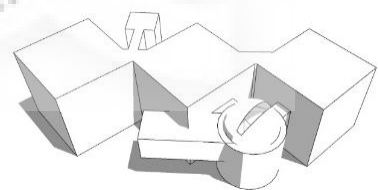


BHAGWAN MAHAVEER CANCER HOSPITAL AND RESEARCH CENTRE



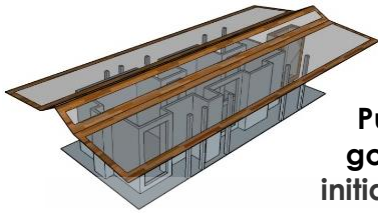
Intersection of forms to develop **transitional spaces**

Separation of high voltage consuming area from other area



Intersection of geometric form, shape and plane

MAGGIE'S CANCER CARING CENTRE



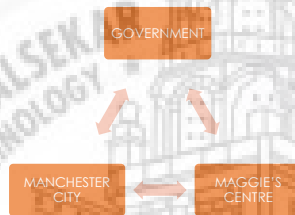
Utilizing form to bring **porosity** in the structure with **insertion of green space**

Public and government initiative to start up a self sufficient institute



Potential of material to fulfil the space concept

Repetition of frames and open pockets of green space

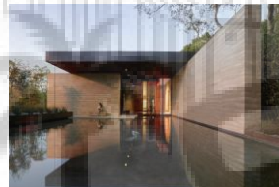


WINDHOVER CONTEMPLATIVE CENTER



Manage **light and shadow** to **emphasize** a space from other

Space segregation through walls **no door system**



Amalgamation of light, water, wind, trees and earth

Material as per **acoustic, texture, color, transparency** requirement



Activity Planning



Therapy



Counselling



Awareness



Admin and Funding help



Opportunity and scope to reach out

Fig. 3.1 Broad categorization of activity

Therapy Types



Meditation



Naturopathy



Acu-puncture therapy



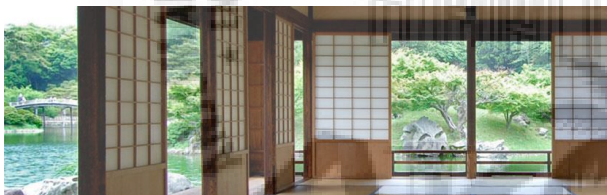
Yoga & Exercise



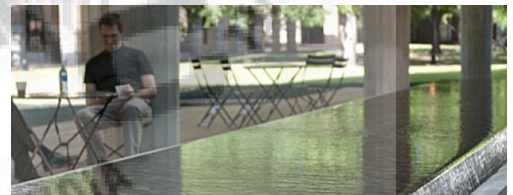
Aroma therapy

Fig. 3.2 Types of therapy required for Cancer

Quality of space



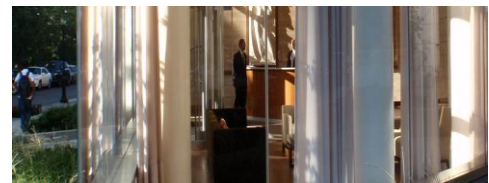
Visual Connection With Nature



Presence Of Water



Non-visual Connection With Nature



Dynamic & Diffuse Light



Thermal & Airflow Variability

Fig. 3.3 Spatial Quality

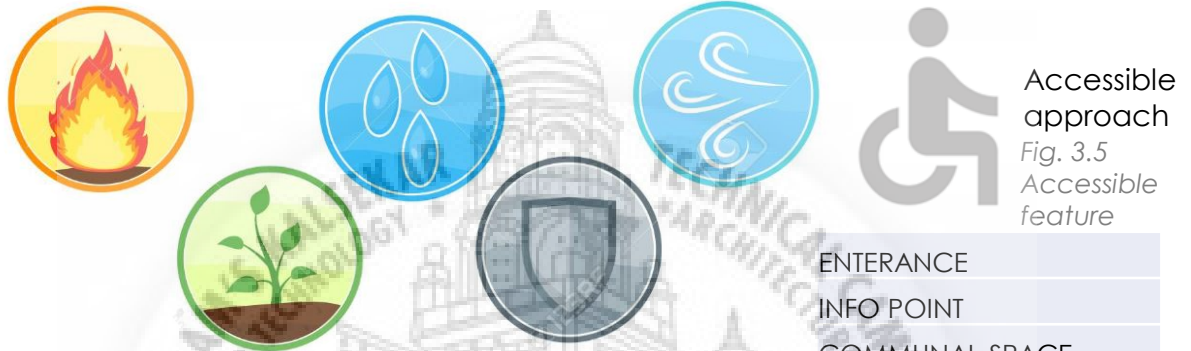
Space and User



Seclusion with nature

Social gathering

Fig. 3.4 Spatial Quality



Connected to 5 elements of nature

Fig. 3.6 Elements of Nature

Accessible approach
Fig. 3.5
Accessible feature

| NATURE | CANCER CARE | CITY |
|----------------|----------------------|--------------|
| SENSORY GARDEN | NATUROPATHY | AUDITORIUM |
| SUNKEN GARDEN | MEDITATION | AMPHITHEATRE |
| GARDENING | ACU-PRESSURE THERAPY | FOCAL POINT |
| WATER POND | OPEN CHEMOTHERAPY | SEATING |
| WATER CANALS | YOGA (OPEN/CLOSE) | CAFETERIA |
| | CONTEMPLATIVE ZONE | |
| | COUNCELLING | |
| | HYDRO-THERAPY | |
| | LIBRARY | |

Table 3.1 Broader Activity Classification

- ENTRANCE
- INFO POINT
- COMMUNAL SPACE
- CONVERSATION ROOM
- OFFICE
- STAFFROOM
- OPEN OFFICE
- STORAGE
- STAFF ENTRANCE
- COUNSELLING ROOM
- WORKSHOP
- LIBRARY
- LOUNGE
- EXERCISE ROOM
- SHOWER AREA
- CHANGING ROOM
- GROUP ROOM
- TECHNICAL UTILITY
- CLEANING ROOM
- TOILET
- ACTIVITY GARDEN
- SENSORY GARDEN
- HALLWAY

Table 3.2 Basic Activity Provided

Area Program

| Space | Quantity | Area | Total Area | No. of People | Functional Qualities | Spatial potential |
|--------------------------|----------|------|------------|---------------|---|---|
| Common area | | | | | | |
| Entrance | 1 | 10 | 10 | 4 to 6 | <ul style="list-style-type: none"> •Placed close to parking •Handicap accessible •Robust and non-slippery floors •Connected to Hospital | Window to centre Welcoming |
| Common Space | 1 | 70 | 70 | 15 to 20 | <ul style="list-style-type: none"> •Buildings heart •Flexible seating arrangement •Connecting niche | Homelike Gathering and social encounters |
| Kitchen | 1 | 15 | 15 | 6 to 8 | <ul style="list-style-type: none"> •Cooking platform •Kitchen hardware | Motivate to cook |
| Multipurpose/ lounge | 1 | 30 | 30 | 6 to 8 | <ul style="list-style-type: none"> •Shelf for books •Flexible furniture | Relaxed atmosphere |
| Fire place | 1 | 25 | 25 | 6 to 8 | <ul style="list-style-type: none"> •Seating | Warmth and cosy |
| Info desk | 1 | 15 | 15 | 3 to 4 | <ul style="list-style-type: none"> •Computers •Shelf for brochures | Exposed Formal atmosphere |
| Children and youth space | 1 | 20 | 20 | 4 to 6 | <ul style="list-style-type: none"> •Playroom with toys and books •Visual connection with Senior's room | Playful atmosphere for children and youth |
| Flexible workstation | 1 | 15 | 15 | 3 to 4 | <ul style="list-style-type: none"> •Multipurpose •Open | Undisturbed Light for work |
| Group room | 2 | 20 | 40 | 10 to 20 | <ul style="list-style-type: none"> •Different furnishing •Soundproof walls | Promotes interaction |
| Conversation room | 3 | 15 | 45 | 3 to 8 | <ul style="list-style-type: none"> •Isolated and singular furniture •Soundproof | Secures the privacy |
| Open conversation room | 1 | 15 | 15 | 3 to 8 | <ul style="list-style-type: none"> •Open but undisturbed | Relaxed and interactive atmosphere |
| Reflective space | 1 | 15 | 15 | 2 to 6 | <ul style="list-style-type: none"> •Fixed benches and chair •Flexible work table | Contemplative & Spiritual |
| Workshop | 1 | 30 | 30 | 4 to 6 | <ul style="list-style-type: none"> •Robust and non-slippery •Open exhibition | Promotes Unobstructed Creativity |
| Viewing Aquarium | | | | | <ul style="list-style-type: none"> •Visually connected and near to seating | Engaging and soothing |

Table 3.3 Detailed area program

Area Program

| Space | Quantity | Area | Total Area | No. of People | Functional Qualities | Spatial potential |
|-------------------------|----------|------|------------|---------------|---|---|
| Activity Areas | | | | | | |
| Exercise room | 1 | 70 | 70 | 10 to 12 | •Exercise machine and floor area •Connection to outdoor area | Stimulating energy and optimization Meditative and acoustic calm |
| Wellness area | 1 | 25 | 25 | 2 to 3 | •Consulting and treatment | |
| Examination room | 1 | 20 | 20 | 2 to 3 | •Bench and desk •Medication and treatment | Maintained privacy Privacy and homely consulting space |
| Infusion room | 2 | 20 | 40 | 4 to 5 | •Medication and treatment | Enclosed by connected to nature |
| Massage room | 4 | 15 | 60 | 2 to 3 | •Medication and massage bench | Enclosed by connected to nature |
| Ayurvedic Therapy room | 4 | 15 | 60 | 2 to 3 | •Medicinal garden and natural built environment | Enclosed by connected to nature |
| Staff Room | | | | | | |
| Offices | 4 | 25 | 100 | 4 to 8 | Administration 12 to 16 | |
| Staff room | 1 | 50 | 50 | 16 | Therapist, Counsellor, Helper | Relaxed atmosphere |
| Storage | 1 | 10 | 10 | | Print and storage | |
| Wardrobe/ Changing room | 1 | 20 | 20 | | Shower and Cleaning | Enclosed and private |
| Supporting Space | | | | | | |
| Wardrobe | 1 | 10 | 10 | | Changing and storage | |
| Storage | 4 | 15 | 60 | | Connected with exercise room, workshop, etc | |
| Toilet | 5 | 5 | 25 | | Accessible and gender specific | |
| Changing room | 2 | 20 | 40 | | Connected to fitness area | |
| Technical room | 3 | 15 | 45 | | Ventilation and servers | |
| Cleaning room | 2 | 5 | 10 | | Cleaning trolley and storage | |

Table 3.4 Detailed area program

Area Program

| Space | Quantity | Area | Total Area | No. of People | Functional Qualities | Spatial potential |
|---------------------|----------|------|------------|---------------|---|-------------------|
| | | | | | Outdoor Facilities | |
| Therapy Graden | | | | | Benches Different planting | |
| Terraces | | | | | Hard coating Terrace furniture | |
| Herbal Garden | | | | | Common space with herbal and medicinal plant | |
| Family Area | | | | | Small outdoor play area Covered place Flexible seating arrangement | |
| Pavilion | | | | | | |
| Storage | | | | | | |
| Organic food garden | | | | | | |
| Open chemo therapy | | | | | Semi open Connected to nature | |
| Open aquarium | | | | | Visually connected and near to seating | |

Table 3.5 Detailed area program

Design Ideas

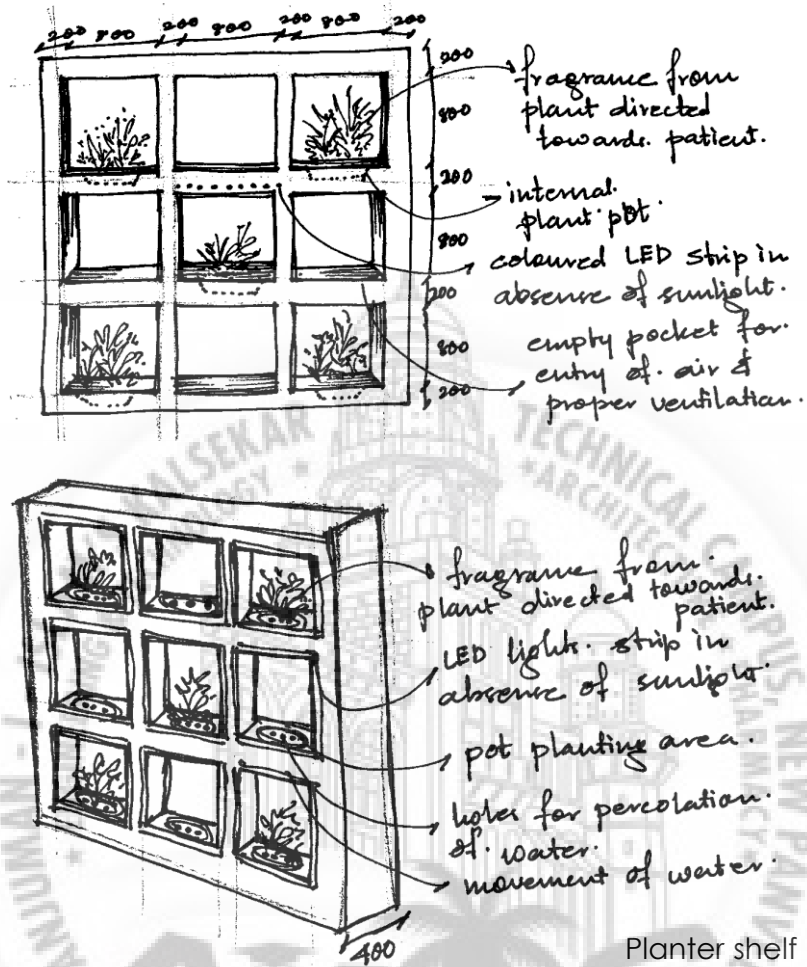


Fig. 3.7 Planter Shelf Concept

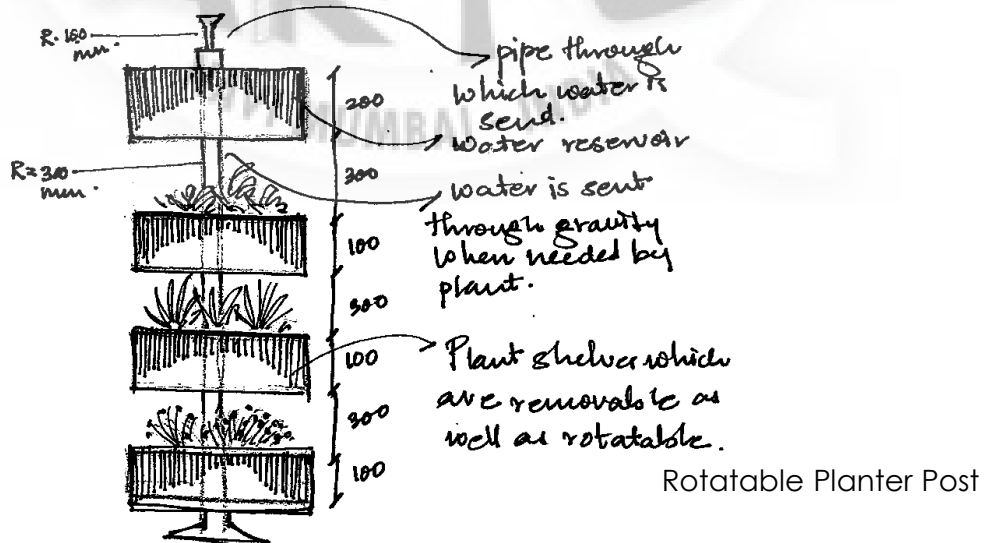


Fig. 3.8 Rotatable Planter Post Concept

GLOBAL PHENOMENON

Cancer rank as leading cause of death among 30-69

2016

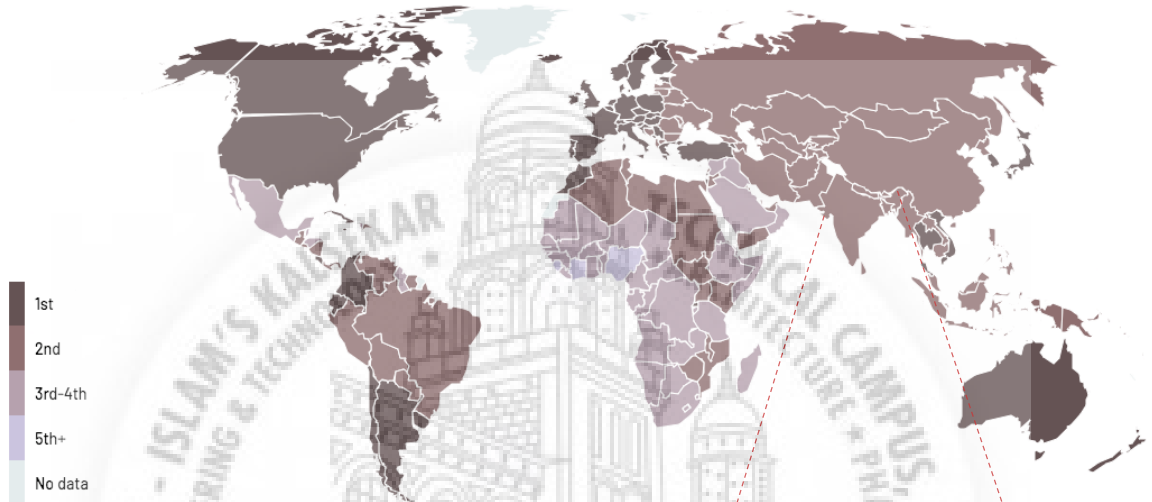


Fig 4.1 Map showing cancer rank as leading cause of death among 30-69 in 2016

Indian Context



- Very less hospitals in India are well equipped with cancer treatment facilities

1. Tata Memorial Government Hospital (Mumbai)
2. Fortis Malar Private Hospital (Chennai)
3. KIDWAI Memorial Institute of Oncology Government Hospital (Bengaluru)
4. AIIMS (New Delhi)

- Although cancer **mortality rates are low in Asia**, the diagnosis and other related facilities are also comparatively low.
- **Mid income, high density** country such as India deals with issues related to reluctant and orthodox nature of patients

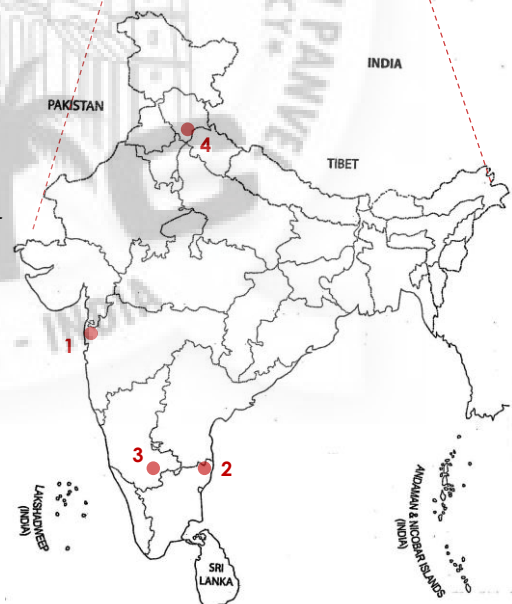


Fig 4.2 Map showing top cancer hospital across India

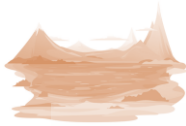
SELECTION CONSIDERATIONS



• **Hospital** that would bring people to the center



• **Residence** that would benefit from the center and maintain an active surrounding



• **Nearby water body** or provisions to create a waterbody



• **Natural reserve** to maintain a soothing surrounding and have positive micro climatic effect

SITE OPTION

Fig 4.3 Objectives for site selection

Tata Memorial Hospital, Mumbai

Nowrosjee Wadia Maternity Hospital



Parel Hospital



KEM Orthopedic Center



Residence

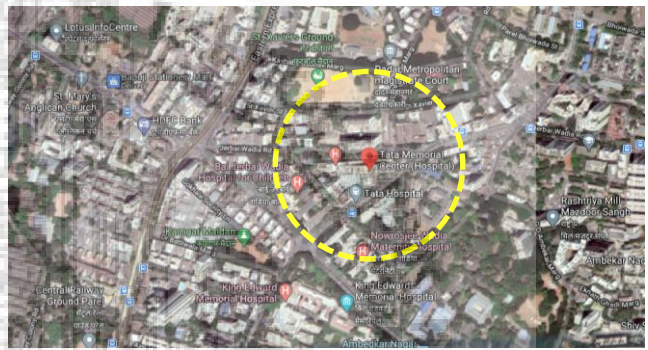


Fig 4.4 Map showing Hospital and surrounding

Weakness:

- Urban congestion
- No green zone or open space

Opportunity:

- Scope for Retrofitting
- Many healthcare institute

Fig 4.5 Neighborhood

Tata Memorial Centre, Navi Mumbai

Retreat Guest House (hotel)



Central park

Khanolkar Shodhika



Ketki Hostel

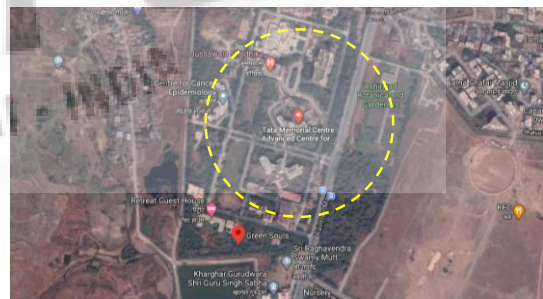


Fig 4.6 Map showing Hospital and surrounding

Weakness:

- Accessibility
- Retreat hotel
- No much development

Opportunity:

- Hospital
- Natural settings
- Water body

Fig 4.7 Neighborhood

Manipal Hospitals, Goa

Our Lady of the
Rosary Higher
Secondary School



The
Point

Vainguinim Beach



Traya Natural
Health Centre

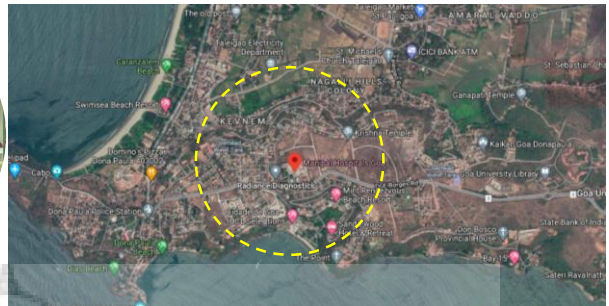


Fig 4.8 Map showing Hospital and surrounding

Weakness:

- Not much in demand
- No advance medical background

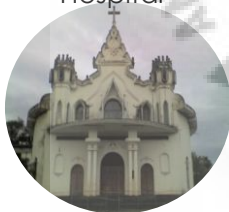
Opportunity:

- Hospital
- Local architecture and seasonal change
- Tourist attraction

Fig 4.9 Neighborhood

Sunrise Oncology Center, Goa

Aster
Hospital



Chapel of Our Lady
of Piety

Boa Viagem
Chapel

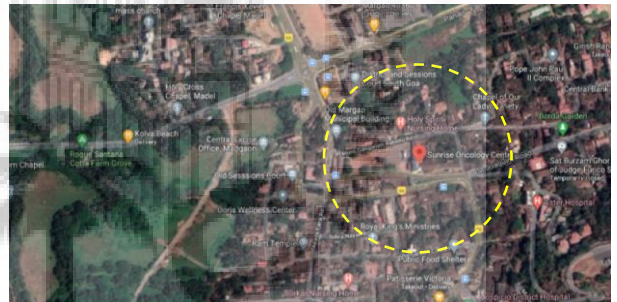
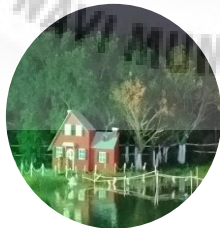


Fig 4.10 Map showing Hospital and surrounding

Weakness:

- Other wellness center
- Not much in demand

Opportunity:

- Hospital
- Local architecture and seasonal change
- Tourist attraction



Grace Intensive
Cardiac Care
Centre

Fig 4.11 Neighborhood

COMPARATIVE ANALYSIS





| SITE | Tata Memorial Hospital, Mumbai | Tata Memorial Centre, Navi Mumbai | Manipal Hospital, Goa | Sunrise Oncology Centre, Goa |
|-----------------------------------|---|--|---|---|
| VIEW |  |  |  |  |
| LOCATION & ACCESS | Dr. E Borges Marg, Parel, Mumbai | Sector 22, Utsav Chowk - CISF Rd, Owe Camp, Kharghar, Navi Mumbai | Panaji, Dr E Borges Rd, Dona Paula, Goa | Aster Hospital, near Holy Spirit Church, Borda, Margao, Goa |
| YEAR OF ESTABLISHMENT / OWNERSHIP | 1941/ Advanced Center for Treatment, Research and Education in Cancer (ACTREC) | 1997/ Advanced Center for Treatment, Research and Education in Cancer (ACTREC) | 1994 / Manipal Education system and Medical Group | 1999/ Tarapur Medical Research Charitable Trust (TMRCT) |
| SPECIALITY / NO. OF BEDS | Treatment and Service /564 | Treatment, Service, Education Research /600 | Diagnosis and Treatment /235 | Diagnosis and Treatment /150 |
| GEOGRAPHIC SCOPE | India | India | Goa and neighborhood | Goa and neighborhood |
| NEIGHBOURHOOD | <ul style="list-style-type: none"> Haffkine Institute For Training, Research & Testing KEM Hospital Bai Jerbai Wadia Hospital for Children | <ul style="list-style-type: none"> Foothills of Sahyadri mountain ranges Centre for Cancer Epidemiology Ashirwad Botanica and Gardeners | <ul style="list-style-type: none"> Radiance Diagnostics Vainguinim Beach Traya Natural Health Centre Dona Paula Beach | <ul style="list-style-type: none"> Mother Care Hospital Aster Hospital Holy Cross Chapel, Madel Chapel of Our Lady of Piety |
| OPPORTUNITY | <ul style="list-style-type: none"> Financed through government Patients across India | <ul style="list-style-type: none"> Near natural settings Education as well as treatment Patients across India | <ul style="list-style-type: none"> Place of tourist attraction Unique approach road connectivity | <ul style="list-style-type: none"> Unique architectural style Near natural settings |
| WEAKNESS | <ul style="list-style-type: none"> Urban settings with lack of natural or open space | <ul style="list-style-type: none"> In remote area far away from public transport | <ul style="list-style-type: none"> Small scale hospital with minimum treatment facility No advance medical background | <ul style="list-style-type: none"> Funded by a small scale trust Small scale hospital with minimum treatment facility |

Table 4.1 Comparative Analysis of site option

COMPARATIVE ANALYSIS



Fig 4.12 View of Tata Medical Campus

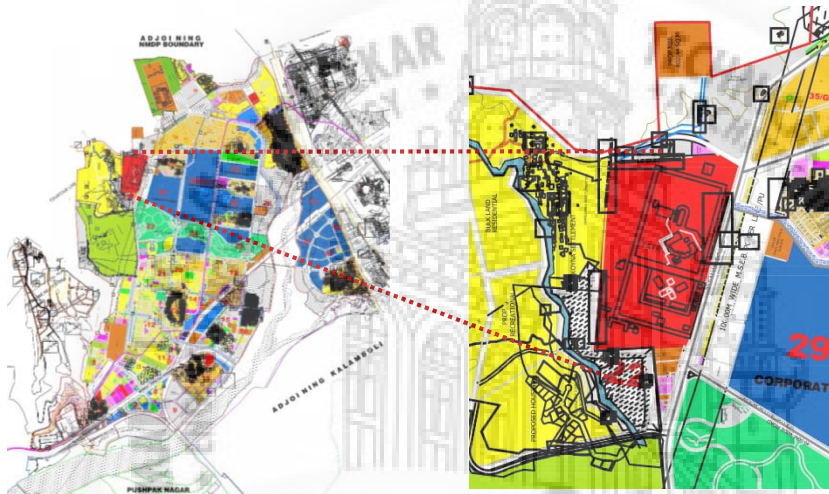


Fig 4.13 Kharghar DP

Fig 4.14 Site in DP

Landuse type

Selected site is allotted for medical facility as per DP and is surrounded with Gaothan settlements, Commercial and green zone beside it.



Fig 4.15 Site marked on Plan

Site Details

- Plot area= 4 acres(16470 sqm)
- Climate type= Tropical, hot and dry
- Landuse type= Medical Facilities
- Context= Peri-Urban

Demarcation of Site

Site is selected within the campus of Tata Memorial Campus and is surrounded with Natural Elements such as forest and mountain ranges.

Site and Surrounding

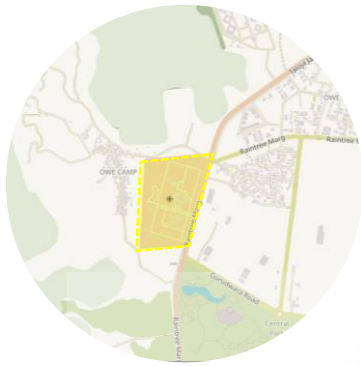


Fig 4.16 Map showing nearby settlement

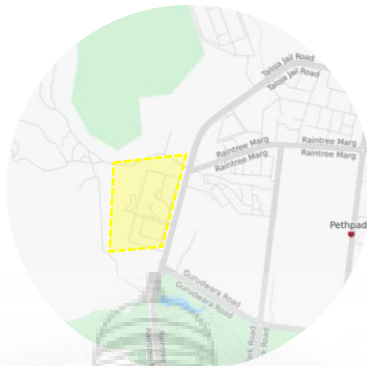


Fig 4.17 Map showing connected roads

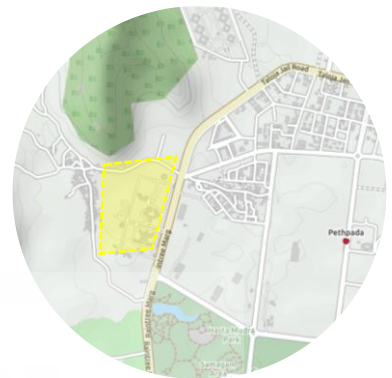
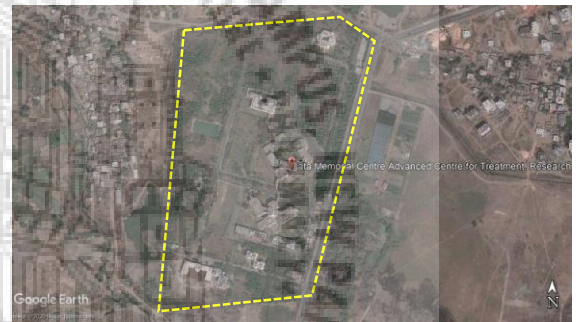


Fig 4.18 Map showing nearby vegetation

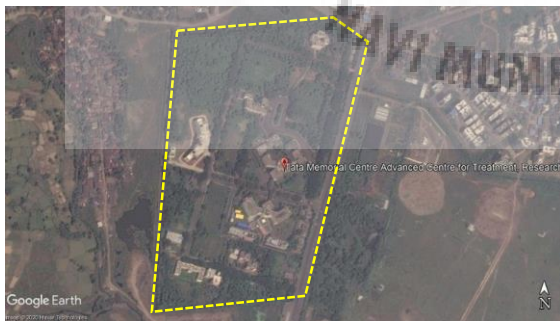
Urban Development



2005
Map showing presence of Main building of Tata Medical Campus



2010
Map showing presence of Nearby settlements and other research building



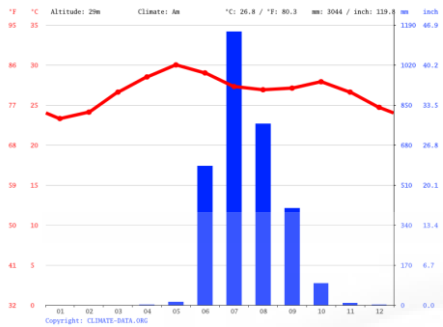
2015
Map showing evolution of various staff hostel and supporting buildings



2020
Map showing Development in and around the campus

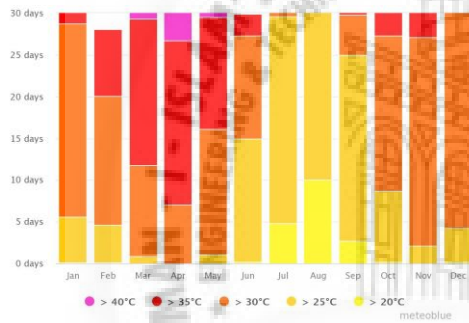
Climatic analysis

Average temperatures and Rainfall



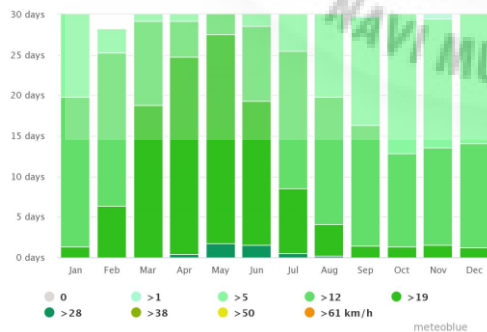
The driest month is January, with 0 mm of rain. Maximum rainfalls in July, with an average of 1160 mm

Maximum temperatures



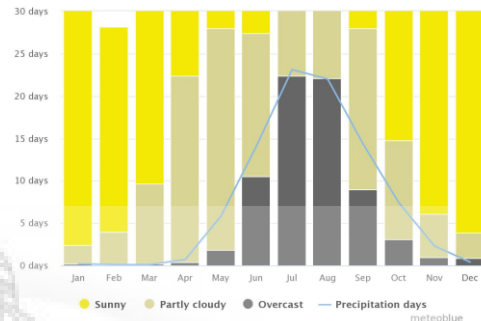
August shows the lowest temperature, whereas April shows the maximum rise in temperature

Wind speed



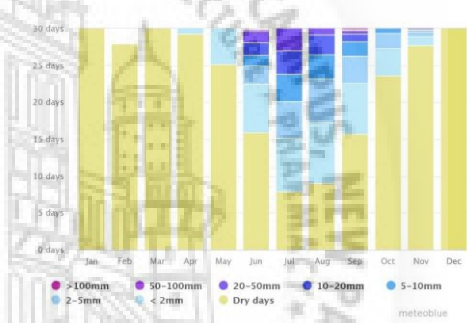
May shows the fastest speed of wind, whereas December shows the slowest speed of wind.

Cloudy, sunny, and precipitation days



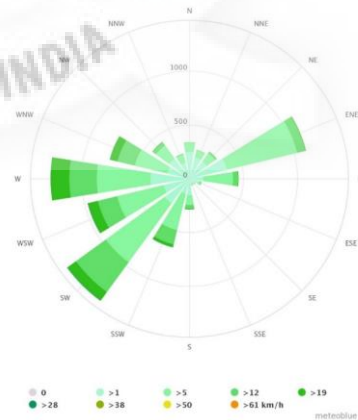
January month has Sunny weather whereas, July and August has Cloudy days

Precipitation amounts



December and January are usually dry. July has highest amount of precipitation

Wind rose



West and South-West winds are prevailing whereas North eastern winds shows some occurrence.

SITE SELECTION

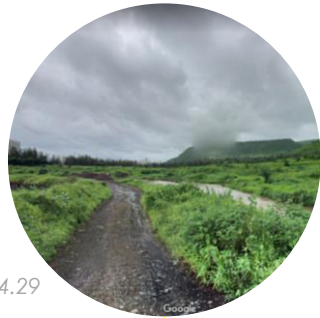


Fig 4.29

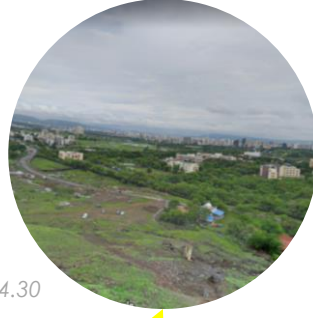


Fig 4.30

Views around the site

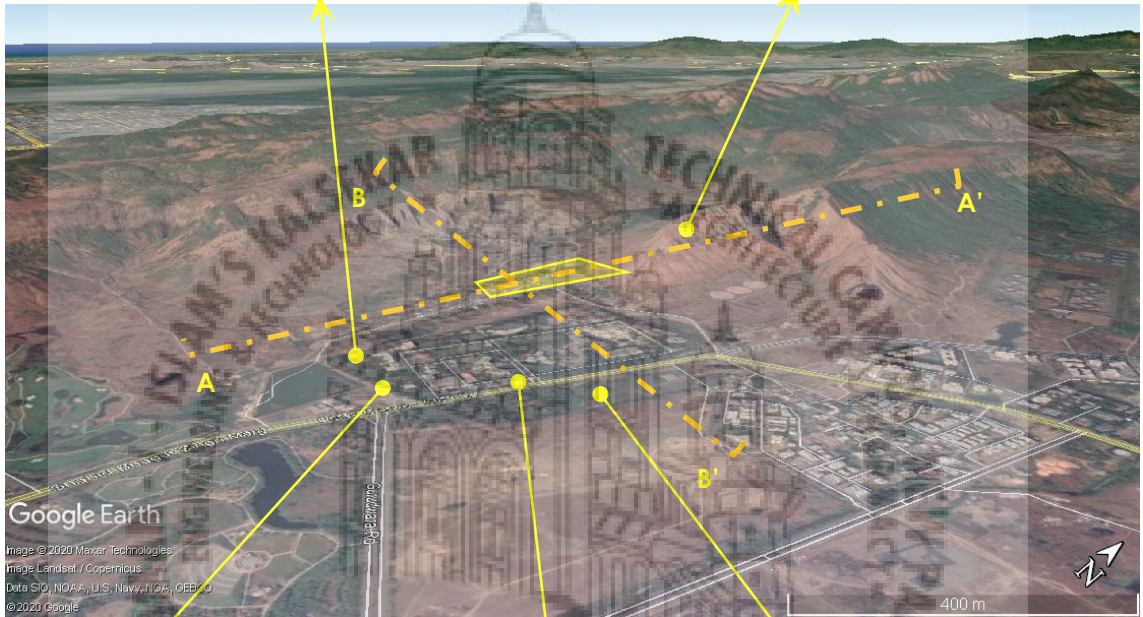


Fig 4.31

Isometric view of site



Fig 4.32



Fig 4.33



Fig 4.34



SECTION A-A' Fig 4.35

Section showing topography around the site



SECTION B-B' Fig 4.36

LITERATURE STUDY

1. The 'C' Word

- <https://www.cancercenter.com/what-is-cancer>
- <https://www.medicalnewstoday.com/articles/323648>
- <https://www.who.int/news-room/fact-sheets/detail/cancer>
- <https://www.webmd.com/cancer/news/20100402/cancer-linked-other-chronic-illnesses>
- <https://www.sciencedaily.com/releases/2018/01/180131184743.htm>

2. Impact of Cancer

- <https://www.who.int/news-room/fact-sheets/detail/cancer-in-children>
- https://www.academia.edu/14803629/A_view_from_the_front_line_Maggie_Keswick_Jencks

3. Healing through Architecture

- <https://www.re-thinkingthefuture.com/fresh-perspectives/a597-therapeutic-architecture-role-of-architecture-in-healing-process/>
- https://www.academia.edu/14803629/A_view_from_the_front_line_Maggie_Keswick_Jencks
- https://www.interface.com/EU/en-GB/campaign/biophilic-design/Nature-in-the-Space-en_GB
- <https://www.terrapinbrightgreen.com/reports/14-patterns/>

4. Alternative Therapy

- <https://www.mayoclinic.org/diseases-conditions/cancer/in-depth/cancer-treatment/art-20047246>
- <https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=90&contentid=P02715>

CASE STUDIES

1. Project Selection

2. Case Study

- **Champalimaud Centre For The Unknown, Portugal**
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3. Comparative Analysis

4. Design Clue

SPACE PROGRAM

1. Space Quality
2. Area Program
3. Design Ideas

SITE SELECTION

1. Global phenomenon
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2. Selection Consideration
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