



Protea Health

Health-Promoting Lifestyle Centres
for South Africa



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INTRODUCTION: CREATING A SALUTOGENIC DESIGN EXEMPLAR

The Health Promoting Lifestyle Centre (HPLC) demonstrates what is possible in the quest to promote South Africa as a centre for health innovation by means of a salutogenic (health-creating) design approach.

The design of the HPLC presents an enticing, practical model for local and global decision-makers who are eager to minimize dependence on costly curative-focused health services. These governments, communities and individuals are prepared to make a major leap upstream in their quest to transform behaviour from supporting an illness-focused society to the norm of a health-promoting lifestyle.

A model for local and global decision-makers eager to minimize their dependence on costly curative-focused health services.

Guided and inspired by nature, the HPLC will leverage salutogenic design principles to advance the physical, mental, social and spiritual dimensions of health. It will also be an exemplar facility for high performance, operational efficiency and environmental regeneration.

In addition to direct public health benefits, the HPLC's design will have a salutogenic impact on the region's economy by freeing people to pursue their full potential, while reducing lost productivity due to sickness. On a global scale, it will serve as an example that accelerates a shift to infrastructure that promotes health and prosperity. In the words

of former British National Health Services chief executive, Lord Nigel Crisp:

...we must allow citizens to make use of their natural strengths in the quest for global health, "taking the future into their own hands... (rather than) wait for others to help them."

...leveraging salutogenic design principles to advance physical, mental, social and spiritual dimensions of health

VISION FOR THIS PROJECT

The HPLC will be a place that local people talk about as a meaningful catalyst for improving life in South Africa's cities, townships and rural areas. Specific salutogenic and biomimetic qualities of the design will have the power to transform what people expect from their infrastructure. The success of this design solution will capture the imagination of governments, communities and individuals around the world as a potent, tangible means to dramatically reduce the burden of disease.

THE CHALLENGE

"The function of protecting and developing health must rank even above that of restoring it when it is impaired."

-Hippocrates

South Africa is making impressive strides to emerge from the combined effects of high rates of income inequality, poverty, unemployment, violence, HIV/AIDS, tuberculosis (TB), malaria and preventable chronic illnesses. The majority of South Africa's slums consist of small overcrowded dwellings with poor sanitary conditions, where contagious diseases are widespread. Basic health care - in particular, maternal and child health, as well as water and sanitation - is seen as a top priority for remediation.

THE POSSIBILITIES

"...South Africa occupies a unique position on a continent that is undergoing a boom...it is a source of ideas for other developing countries eager to learn how a fledgling democracy can work in the wake of a trying past."

- Knowledge@Wharton Newsletter
August 31, 2011
"Can South Africa Help Usher in a Continent's Economic Renaissance?"

According to the World Health Organization (WHO), South Africa is fortunate to possess the following high-level opportunities that relate to the broader determinants of health:

- Strong socioeconomic development
- Active involvement of non-governmental organizations
- Availability of support through partnerships
- A well-developed infrastructure
- A well-developed private sector

Expectations by citizens for building design quality in the region are now quite high. Since 1994, the pursuit of a democratic society has paralleled an appetite for non-monumental architecture that fulfills the public role of celebrating day-to-day life through theatre, arts, music, sports and education.

Moreover, the HPLC has been designed to be a powerfully tangible means to achieve the South African Government's Millennium Development Goals; in particular:

- MDG4: Reduce by two-thirds between 1990 and 2015 the under-five mortality rate.
- MDG5: Reduce by three-quarters between 1990 and 2015 the maternal mortality rate.
- MDG6: Have halted and begun to reverse the spread of HIV/AIDS and TB by 2015.

OUR DESIGN RESPONSE: INFLUENCES

Drawing on the principles of salutogenic design described in Section 4.0, the architectural form will convey a locally inspired expression of health, hope and economic vibrancy. It will attract and empower all who work, learn, play and visit here.

The principles of salutogenesis as conceived by Dr. Aaron Antonovsky emphasize the importance of a sense of coherence (SOC) which considers the relationship between health, stress and coping. Dr. Antonovsky begins by explicitly identifying stress and chaos as normal aspects of human life.

This concept recognizes that when individuals are compromised by stress, they are significantly more vulnerable to disease. When each of three SOC elements—comprehensibility, manageability and meaningfulness—is incorporated into a building, the design reduces stress and increases well being.



The source of inspiration for the design image and function is South Africa's national flower, the Protea, which is known for its wide variety of forms and colours. This flower's name is derived from the Greek god Proteus, who could change his form at will. In a similar spirit of transformation, the Protea's strong image and varied forms will evoke the adaptive and responsive nature of the HPLC.

Known for its wide variety of forms and colours, the Protea's name is derived from the Greek god Proteus, who could change his form at will. Similarly, the Protea's strong image and varied forms will evoke the adaptive and responsive nature of the HPLC.

Furthermore, the Protea has meaning as a symbol of national hope, beauty and the aspiration for the aesthetic harmony of South Africa's cultures; it evokes the flowering of a nation and its ability to grow strong by allowing the unique talents of its people to blossom through expression in theatre, arts, music, sport and education.

The design incorporates strategies that nature uses to create conditions conducive to life. It will not only evoke images of nature, but also function as a part of nature. For example, similar to the attraction that flowers have toward pollinators, the building shape of the Protea will attract people to the Centre. In particular, the outpatient clinic will be an architecturally soft and welcoming bio-inspired design, producing a beautiful sculpture and vertical feature on the landscape. The architecture will be a living part of the site, contributing to its regenerative capacity through diverse environmental strategies, as noted in Section 9.0.

The design incorporates strategies that nature uses to create conditions conducive to life.

The study and application of biomimicry has provided guidance for the design through opportunities to learn from and emulate the functions of nature, rather than by simply copying natural forms. Drawing on the best ideas, principles and strategies that nature has to offer, the design recognizes that there are forms, processes and systems in nature, such as water management, light use and recycling, that are unparalleled by human technology in their elegance and efficiency. Application of these robust lessons from nature will bring the Protea-inspired architectural design to life, so that it contributes to the health of the HPLC by incorporating strategies that nature uses to create life-generating conditions.

The HPLC will be a “Centre of Influence” equivalent to the hospital-based Centre of Excellence.

It will attract and empower all who work, learn, play and visit here. The design will demonstrate that the building must not be conceived as an island within its community, nor can it succeed by merely fusing a primary health care facility with a community centre.

Furthermore, the process of creation will bring government, business and individual citizens together to bring salutogenic ideals to reality. It will be the basis for discovering innovative ways to finance and develop the facility for generations into the future by providing enhanced personal and social resources for everyday life.

As a catalyst for **shifting behaviour from a curative model to an educational perspective**, the project will re-imagine the concept of health education as a continuous, lifelong learning process rather than as a series of discrete events and interventions. When this healthy world view is integrated into everyday life, people are empowered to become active participants and creators of their own destiny.

It will set an international standard for promoting the full range of upstream causes of health, which will be seen as appealing, understandable and accessible to everyone

The purpose of this project is to demonstrate what is possible and realistic in the quest to promote South Africa as a centre for health innovation by means of a **salutogenic design approach**. It will significantly advance South Africa's vision for delivering primary care to the most vulnerable populations in the country.

The design will present an enticing, practical model for local and global decision-makers who are eager to minimize dependence on costly curative-focused health services. These governments, communities and individuals are prepared to make a major leap upstream in their quest to transform behaviour from supporting an illness-focused society to the norm of a health-promoting lifestyle.

The ultimate design is intended to be adapted to fit the context of each of South Africa's nine provinces, as well as for **rural, urban and suburban** locations.

Guided and inspired by nature, the HPLC will leverage salutogenic design principles to advance the physical, mental, social and spiritual dimensions of health. It will also be an exemplar facility for high performance, operational efficiency and environmental regeneration.

Moreover, the HPLC will be a **“Centre of Influence”** equivalent to the hospital-based Centre of Excellence. Whereas the well-established concept of the Centre of Excellence is recognized as the source for outstanding **downstream illness care**, this South African-centric innovation will change how people think about their lives. It will set an international standard for promoting the full range of upstream causes of health, which will be seen as appealing, understandable and accessible to everyone.

South Africans have already proven their capacity to change their destiny. After decades of turmoil, a vibrant new era of democracy has unfolded. The HPLC will embody the country's growing expectations and eagerness to lead the way toward a progressive model for achieving better health at remarkably greater value for money.

The **salutogenic model** as originally conceived by Dr. Antonovsky was particularly concerned with the search for factors that keep people healthy, especially those in difficult circumstances, as opposed to investigating the reasons for ill health. The urgency to address upstream factors that contribute to South Africa's burden of disease has become an indisputable necessity.

The HPLC will address these upstream factors by means of health-generating design, incorporating an array of opportunities to lead healthier lives.



It is recognized across Africa that, within the different communities, those who are most vulnerable to ill health are **women, children under the age of five and young adults**. According to the WHO Strategic Agenda for South Africa, priorities for the period 2008-2013 include:

1. Reduce the health, social and economic burden of communicable diseases

2. Combat HIV/AIDS, tuberculosis and malaria
3. Prevent and reduce disease, disability and premature death from chronic non-communicable conditions, accidents, violence and injuries
4. Reduce infant, child and maternal morbidity and mortality and promote responsible and healthy sexual and reproductive health behaviour
5. Strengthen health policies and systems, improve access and minimize the effect of social and economic inequities and impact on the health of the poor
6. Promote inter-sectoral collaboration to address the impact of social determinants of health on the poor and vulnerable

The magnitude of the health-centric problem is dire, as indicated by current statistics, beginning with the stark reality of an average 49-year life expectancy. South Africa has the second highest HIV/AIDS rate in the world, with an estimated 5.5 million people, or 18.8% of the population, HIV-positive; there are 1,000 AIDS-related deaths every day. South Africa is the fifth-worst TB-affected country in the world with 1,000 associated deaths a month.

The low income and social status of women in Africa are key contributing factors to their high vulnerability to ill health, combined with their lack of education, traditional gender roles and responsibilities. Three-quarters of the population living with HIV/AIDS in Africa between the ages of 15-24 are women.

While women are biologically more vulnerable to HIV/AIDS, the key factors behind this

disparity are social and economic. Financial circumstances can force women into selling themselves for sex and many of those who are in relationships or married are not in a position to demand faithfulness or safe sex.

The United Nations estimates that 4,500 women die each year in South Africa due to preventable and treatable pregnancy- and child-related causes. One in 16 women dies as a result of pregnancy or childbirth compared to one in 4,000 in industrialized countries.

Violence against women is also a major concern in South Africa, which has the highest incidence of this in the world among countries not at war. Many women live in fear of rape and injury at the hands of partners, which prevents women from protecting themselves from pregnancy and sexually transmitted infections, including HIV/AIDS.

Young people are excluded from many public health interventions, yet they are particularly vulnerable to many diseases, especially sexually transmitted infections, such as HIV/AIDS. Two-thirds of people in the world living with HIV between the ages of 15-24 are from Africa. Traditionally they have been perceived to be free from the health risks of early childhood and remote from illnesses associated with old age.

In addition to communicable diseases, South Africa is experiencing an alarming increase of preventable chronic diseases, including those associated with obesity (e.g., diabetes, kidney disease, circulatory diseases and blindness, cardiovascular diseases and cancer).

The majority of South Africa's slums consist of small overcrowded dwellings with poor sanitary conditions, where contagious diseases are widespread. Basic health care - particularly maternal and child health, water and sanitation - is seen as the top priority. Few people living in slums have jobs with a

living wage; women often resort to sex work to supplement their earnings, resulting in higher than national average rates of HIV infections and STI.

Seventy percent of the population in rural areas first consult with traditional healers when falling ill, yet the health care system does not fully collaborate with these healers in health care delivery. There is also a critical shortage of health workers, especially in rural areas, where 72% of the population lives. Overall, there are currently 4,222 unfilled vacancies for doctors and 32,734 vacancies for nurses.

As in most countries around the world, South Africa has historically placed greater emphasis on curative health interventions within hospitals and health centres in major towns and cities, rather than education for prevention and basic treatment in poor rural and urban communities. In recent years it has become clear that a more holistic approach is required to understand the underlying factors that influence overall health and well being of South African communities. To achieve this, it is vital to address the broader determinants of health, such as:

- education levels (including general schooling and health education)
- literacy
- gender factors
- income levels
- accessibility to primary, secondary, tertiary and quaternary levels of health care
- access to clean drinking water and proper sanitation
- food security and availability of good nutrition
- sustainable environments
- ability to earn a livelihood
- stress levels
- access to fitness and recreation
- cultural cohesion

Many parts of South Africa have limited access to quality primary care. The poor suffer from a disproportionate burden of disease, while typically having less access to health care, whether measured by geographic accessibility, availability, financial accessibility, acceptability or quality of care. Success of the whole system depends on gaining a local understanding of the dimensions and determinants of access to health services, then improving access to these services.

The HPLC will create a tangible means to advance the physical, economical, cultural, emotional and spiritual health of the nation.

Access to primary care must also be addressed in terms of personal safety, distance to the HPLC, costs of transportation and overcoming the stigma associated with being seen entering a traditional health centre for HIV/AIDS testing. Special access considerations for women, who are amongst the most vulnerable to ill health, include planning and designing the centre in such a way to maximize safety and minimize barriers to travel. Gender-based design issues include creating differentiated spaces for the sexes, attention to providing privacy, offering a degree of surveillance and accommodating inter-generational use. Such considerations as window size, views to the outdoors, size of rooms and spaces for children to play while mothers meet with clinicians increase both the perception and the reality of safety and comfort for women.

Innovations in financing, service delivery, partnerships and regulation of care are potential sources for improving access for the most vulnerable to illness. An overarching challenge and opportunity is to find ways to ensure that vulnerable populations have a say in how strategies are developed, implemented and evaluated in terms of demonstrating improvements in achieving equal access for all. According to the World

Health Organization (WHO), South Africa is fortunate to possess the following high level opportunities that relate to the broader determinants of health:

- Strong socioeconomic development
- Active involvement of non-governmental organizations
- Availability of support through partnerships
- A well-developed infrastructure
- A well-developed private sector

Expectations for buildings in the region are now quite high. Since 1994, the pursuit of a democratic society has paralleled an appetite for non-monumental architecture that fulfills the public role of celebrating day-to-day life.

The concept of salutogenic design stems from breakthrough thinking by Dr. Aaron Antonovsky whose research focused on understanding causes of health, rather than on traditional studies to determine the origins and development of disease. In the most basic terms, it is useful to contrast salutogenesis with pathogenesis. Whereas pathogenesis is focused reactively on how individuals can avoid or decrease the impact of disease, salutogenesis can be used proactively to enhance the physical, mental, social and spiritual dimensions of health. In order to maximize wellness and prosperity, strategies of pathogenesis and salutogenesis must be leveraged together.

These different points of reference—either emphasizing causes of health or causes of disease—have the potential to impact high-level decisions, such as funding and service delivery, as well as to influence choices by individuals regarding their day-to-day health. In essence, salutogenesis provides a framework for individuals, organizations and society to better understand how their choices can lead to optimal health, rather than simply a neutral state of being “unsick.”



In the context of environments that generate well being, the salutogenic design approach specifically aims to promote healthy behaviour. Not only is such design intended to improve personal health, it also seeks to reduce demand on other resources in the healthcare system at large, while ultimately increasing regional prosperity. In this context, prosperity should not be seen as referring to the accumulation of material wealth. Rather, it is the sense of well being that comes from the capacity to participate in meaningful activities with the personal and physical resources required to make positive contributions to society; that is, contributing to something larger than ourselves.

Many people in the Western world currently view good health as an entitlement, regardless of the consequences in terms of associated costs. By contrast, salutogenic thinking, research and dissemination of leading practices offer a realistic, cost-effective way forward for people everywhere.

The principles of salutogenesis as conceived by Dr. Aaron Antonovsky emphasize the importance of a **Sense of Coherence** in considering the relationship between health, stress and coping. He begins by accepting that stress and chaos are normal aspects of human life. It follows that our design choices either add to, or lessen, the impact of stress and chaos.

Dr. Antonovsky’s concept recognizes that when individuals are compromised by stress, they are significantly more vulnerable to disease. Our **Sense of Coherence** is comprised of three elements, each of which reduces stress and increases well being when applied to the built environment:

1. **Comprehensibility:** the design is easy to understand, rather than mysterious and confusing; for example:

- Ease of spatial orientation
- Simple circulation patterns
- Building massing that communicates

relative location

- Functional transparency where possible
- Predictability and order in design

2. **Manageability:** the design promotes independence of movement through the space, rather than being difficult to access and navigate; for example:

- Empowering individuals through appropriate signage
- Graphics combined with words where appropriate
- Clearly visible vertical circulation
- Accessible design standards applied
- Human assistance readily seen and available

3. **Meaningfulness:** the design conveys a message to visitors and staff that they matter and that they are appreciated, in contrast to space that is generic or remote and monumental in scale; for example:

- Design that draws on significant cultural, historical and/or geographical influences
- Human-scaled design
- Design that recognizes the innate human need for strong links to nature
- Entrance that welcomes visitors
- Finishes, furniture and art that convey respect
- Walls that communicate recognition and knowledge

As was stated, salutogenesis provides a framework for individuals, organizations and society to better understand how their choices can lead to optimal health. The success of the HPLC, as a key element in the salutogenic approach, will be measured, in part, by its ability to:

- Reflect a clear paradigm shift whereby the physical environment plays a tangible role in preventative medicine
- Serve as a means of promoting health processes
- Include infrastructure to support a healthy lifestyle

It is generally accepted that focusing programs and services in the following priority areas, targeting South Africa's most vulnerable populations (poor, women, children under five and youth) in urban, township or rural areas, will be most effective in improving the overall health of communities in South Africa:

- Primary care
- Maternal health
- HIV/AIDS treatment and prevention education
- Violence against women
- Vocational training
- Water and sanitation
- Income security
- Access to technology
- Food security
- Obesity and nutritional counselling
- Sustainable farming practices
- Environmental sustainability

It is therefore proposed that the spaces within our HPLC be programmed to allow for a **variety of potential programs and services** to operate. Specific programs will be selected and tailored to suit each geographic region and each level (urban, township, rural) and are not fixed for each centre. In this model, with programs tailored to suit local needs and circumstances of each geographic region and local demographic, people will become active participants and creators of a more holistic health process.

For example, in shanty town environments, employment opportunities for women tend to be very limited, thus resulting in a tendency for women to work in the sex trade industry in order to survive and provide for their families. Such realities often result in very dangerous circumstances for women and often lead to accelerated communicable rates of HIV/AIDS.

An HPLC in this environment may, therefore, elect to offer **vocational training programs** targeted for women, such as hairdressing or tailoring and other business skills to help sex workers find alternative means of earning a living and thus mitigating the risks to women and reducing the spread of HIV/AIDS. In a more rural setting, the local needs may suggest a requirement for **training programs targeted to farmers**, such as sustainable farming techniques that allow families to earn a more profitable living while preserving the natural resources required to support farming in the longer term. This, in turn, allows for a higher quality of life, better ability to purchase nutritional food and makes better housing options more affordable. Overall, quality of life is raised while stress is decreased.

General Programs at the HPLC

The potential programs and services that could be housed within a typical HPLC are limited only by our imagination. The focus areas may vary from one province to another between rural, suburban and urban settings; however, the HPLC infrastructure is intentionally designed to be flexible enough to accommodate a range of programs, services and activities that will have the **greatest downstream effect** for every rand invested. We would begin by proposing that programs and services that will have the greatest downstream effect in terms of enhancing the overall quality of life, health and wellness for South Africans will fall within the following categories:

- Primary health care
- Water and sanitation
- Food security and nutrition

- Sustainable environmental practices
- Vocational training
- Sports, fitness and recreation
- Arts and culture
- Community retail

Typical Primary Health Care Programs

Despite improvements in providing access to health care, it is recognized that access to primary health care in much of South Africa today is a significant challenge. Substantial proportions of the population have limited access to quality primary care. Research also indicates that access to primary care is significantly affected by social stigma. The HPLC programs must be careful to improve access while avoiding such stigma-related barriers to access. Sample programs include:

- Those that raise awareness on issues surrounding HIV/AIDS (such as prevention, treatment, stigmatization) and other prevalent diseases through community-level education initiatives, awareness-building campaigns and support to community-based organizations.
- ‘Trainer of Trainers’ programs to create more people who are armed with information about diarrhea, malaria, cholera, HIV/AIDS and the importance of immunization. “Task-shifting” allows healthcare workers to become involved in particular stages of treatment provision where currently they are not allowed.
- Dental and hygiene clinics
- Programs that work in partnership with the Ministry of Health to improve the quality and distribution of antenatal care, voluntary counselling and testing, PMTCT and antiretroviral therapy services.
- Antiretroviral treatment programs along with integrated treatment and care programs for TB and HIV/AIDS.
- Training and support programs for traditional birth attendants and community health workers to promote health and provide information on HIV/AIDS and safe

delivery.

- Programs that provide care and support for children orphaned and made vulnerable by HIV/AIDS, including mentoring, counselling and ensuring their education and rights.
- Programs that train and support traditional healers to respond to the challenge of HIV/AIDS and other sexually transmitted diseases and closing the gap that exists between the healers and the formal health care services. This recognizes that 70% of the population approach traditional healers first.
- Programs designed to encourage communities to take an active role and bring about positive changes in attitude and behaviour of men toward reducing the incidence of gender-based violence.
- Programs that enable health and social care service providers to protect vulnerable women and girls. Additionally, programs on family planning and sexual reproductive health with training and awareness-raising to improve the health status of women.
- Educational programs that promote reproductive rights, including those that help women to make informed choices about family planning.
- Affordable spaces that allow for the increased use of Lay Health Workers. (WHO research into lay health workers in South Africa regarding primary and community health care for maternal and child health and the management of infectious suggests that lay health workers are effective in promoting the uptake of immunization in childhood, initiation of breastfeeding, any breastfeeding, exclusive breastfeeding and pulmonary tuberculosis cure rates).
- Provision for a community outreach vehicle, such as the “Tutu Tester”, that currently tours Cape Town neighbourhoods, testing over 50 people per day. Such a program would mitigate risks associated with distance and reduce the social stigma as the vehicle makes available a range of other medical tests beyond HIV/AIDS.

- Traditionally, effective outpatient clinics for such services as immunization programs, communicable disease testing and obesity management.

Typical Water and Sanitation Programs



Improving the material, technical and capacity of local government and residents to deliver and have access to safe water, sanitation and hygiene is critical across all levels within the country. In this context, access to clean water, sanitation and educational programs can be considered a necessary material condition for good health. Sample programs include:

- Facilitating the provision of clean, safe drinking water to communities and schools through the construction of boreholes, water points and hand-dug wells. Additionally, access can be achieved through the development of a large-scale rainwater harvesting system, pit latrines and handwashing facilities.
- Facilitating the establishment of local water and sanitation committees to manage water resources, plan for repairs and contribute towards awareness-raising initiatives on key sanitation and hygiene topics. The HPLC can also function as a

schedulable venue for water and sanitation committees to meet.

- Develop and deliver large-scale awareness-raising campaigns on water, sanitation and hygiene (WASH) related topics: radio shows; training; school-based sanitation ‘competitions’; development of WASH curriculum for schools; dissemination of reading materials and brochures; etc.

Typical Food Security and Nutrition Programs



As with access to clean water, supporting long-term food security for farming families in vulnerable communities can be seen as a critical element in the promotion of a more holistic health process. Included within the HPLC infrastructure will be dedicated agricultural / garden areas to facilitate education and hands-on agricultural training. Sample programs include:

- Events that teach the benefits of boosting crop production and crop diversification by increasing access to improved agricultural technologies, such as oxen and ox-ploughs, rippers, jab planters, irrigation tools, etc., and farming inputs, such improved seed varieties, natural fertilizers, etc.
- Training and demonstrations by Community Nutrition Educators on nutrition-related topics, such as healthy

diets, improved hygienic cooking practices, food preservation and increasing the production of nutrient- and protein-rich foods (including a diversity of fruits and vegetables, livestock production, etc.) to ensure healthy diets.

- Facilitating the sharing of agro-ecological knowledge and skills among farmers in hands-on, participatory ways, such as Seed Fairs and through the Farmer Field School approach (forming farmer-led 'schools without walls').
- Training and coordination services to local government bodies and agricultural extension offices to strengthen their technical support capacities for farming communities.

Typical Sustainable Environment Programs

As farmers and household providers, rural women manage natural resources daily. Their participation in programs for the sustainable management of land, water and biodiversity is essential. Sample programs include:

- Establishing community-based tree nurseries and providing tree seedlings (both local fruit-bearing and standard varieties) as well as tree nursery management training and equipment to foster reforestation and soil repair.
- Raising awareness on local issues surrounding environmental degradation and protection of natural resources through community-level educational campaigns and support to local government bodies and community-based organizations.
- Introducing and making available energy-saving stove technologies to households in order to reduce levels of wood consumption (for fuel) and indoor pollution (through smoke reduction).



Typical Vocational Training Programs

Increasing community resiliency by diversifying income sources and expanding market access will have a direct midstream benefit across all regions and demographics. Sample programs include:

- Providing training and capacity-building in topics such as business management, bookkeeping and value-addition to farmers and business owners.
- Retail outlets that provide vital physical and social services, such as eyeglass vendors, pharmacy, orthotic medical devices, internet café, media technology centre, mobile phone vendors, micro-loan kiosks for new business funding, massage and yoga facilities, martial arts and Pilates studios, acupuncture clinics, etc.
- Removing barriers to education and social development for girls in villages through the construction of school dormitories, showers and sanitation facilities.

Typical Sports, Fitness and Recreation Programs

- Sports facilities, including a swimming pool to promote overall good health and exercise practices, sports fields (five-a-side football pitch) to engage youth in both organized or impromptu matches, and even an obstacle course for the disabled to encourage socialization and activity.
- Health and wellness facilities (massage therapy, yoga, Tai Chi, Pilates, counselling, alternative therapies, etc.)
- Internet Café

Typical Arts and Culture Programs

A challenge will be how successful the HPLC will be in enticing youth within a context of invincibility and scepticism. Utilizing song, dance and dramas, as opposed to traditional health education methods, is one way in which the HPLC embraces the offering of education and prevention in a youth-friendly way. Sample programs include:

- Performance / theatre-related spaces that offer a variety of cultural and musical entertainment events. Attending the centre to hear a popular hip-hop artist may create an opportunity for youth to also learn about important health related services without potentially being stigmatized. Theatre-related spaces can also serve as a venues for continuing the traditional story-telling culture of South Africa whereby plays or lecture series could communicate critical messages on topics, such as HIV/AIDS, etc.
- Conference, education and training halls to host awareness-raising campaigns or events relating to health, nutrition, safety and general lifestyle choices. An exhibition gallery can also be used as a platform to showcase bead and craft work of local artists, or as a venue to demonstrate traditional / contemporary wall painting techniques.

Typical Retail Programs

The aforementioned potential programs offered at the HPLC will work to promote a healthy lifestyle change, as well as providing a platform for the showcasing of various products and events. Thus, a variety of retail spaces available to local entrepreneurs could offer high-traffic retail locations for vendors offering services that align with the overall wellness philosophy of the HPLC, including:

- Prescription eyeglasses
- Micro loan financial services
- Mobile phone vendors (designed to attract youth)
- Retail pharmacy

CONSIDERATIONS for FINANCING and ENABLING

To transform this inspiring vision of the HPLC into reality requires a commitment by governments, communities and individuals willing to make a major leap upstream in their quest to transform behaviour from supporting an illness-focused society to the norm of a health-promoting lifestyle.

By weaving together the services and financing of both government and non-governmental organizations, these **strategic partnerships will form the financial and functional means** to help the HPLC lead the way toward a progressive model for achieving better health at remarkably greater value for money.

Many of the proposed programs listed in the previous section in fact already exist in both government and non-governmental organizations across the spectrum of sectoral silos and in various regions of the country. For example, the “Tutu Tester” is an existing program successfully operating in Cape Town and could easily be transferred to suit a range of locations.

Equally some of the programs listed may not currently exist despite there being a high demand for them. It is possible that interest and support would be generated and future programs could be implemented if the facility and space were made available.

The following government departments may have some interest in using the HPLC for activities that implement and advance some of their current and future programs. These may be day clinics or programs that run for several weeks at a time within the HPLC which would provide the supportive facilities; for example, meeting spaces, education and training rooms or a lecture hall / amphitheatre:

- Department of Agriculture, Forestry & Fisheries
- Department of Arts & Culture
- Department of Education
- Department of Cooperative Governance & Traditional Affairs
- Department of Environmental Affairs
- Department of Higher Education & Training
- Department of Rural Development & Land Reform
- Department of Science & Technology
- Department of Sports & Recreation South Africa
- Department of Water Affairs
- Department of Women, Children & People with Disabilities
- Department of Health

Operating Costs

The aforementioned potential programs offered at the HPLC will work to promote a healthy lifestyle change, as well as providing a platform for the showcasing of various products and events. The proceeds from rent and possibly a percentage of sales collected from these vendors can be applied to subsidize the operating costs of each HPLC, thus enhancing the sustainability of the concept. In addition, the more cross-sectional interest there is in this model, the greater the likelihood of securing start-up capital and ongoing operational funding. Operational funding for this health-related concept should not be left to the Ministry of Health alone. Given the interconnectedness of cultural, economic, social and educational programs at the HPLC, each of these typical funding silos may see the merit in financially supporting this holistic wellness model.

The HPLC will reflect salutogenic and biomimetic principles **symbolically** as well as **functionally**. Recognizing that the HPLC represents a dramatically different vision for the future of health, the architecture must be equally powerful and exuberant. Stated another way, if the tangible reality of the physical place does not match the inspiring emotional words associated with salutogenesis, the result may be dismissed as a fancy community “centre of good intentions.”

By contrast, the HPLC will provide specific, diverse holistic health opportunities that offer hope, healing and renewal for the most vulnerable to ill-health.

“...what we in government wish is to see more of in the planning and design of the built environment (is) the ability for African trends to reveal themselves, for Africanness to find expression in the physical environment around us. This is not the route of the copy cat; it is the route of the artist, of the African that beats within all of us.”

- Jeff Radebe, former South African Minister of Public Works

The dominant source of inspiration for the design image is South Africa’s national flower, the Protea, which is known for its wide variety of forms and colours. This flower’s name is derived from the Greek god Proteus, who could change his form at will.

In a similar spirit of transformation, the Protea’s strong image and varied forms will evoke the adaptive and responsive nature of the HPLC. Furthermore, the Protea has meaning as a symbol of national hope, beauty and the aspiration for the aesthetic harmony of South Africa’s cultures; it evokes the flowering of a nation and its ability to grow strong by allowing the unique talents of its people to blossom through expression in theatre, arts, music, sport and education.



National Coat of Arms





Aerial View of HPLC

APPLICATION OF SALUTOGENIC AND BIOMIMETIC DESIGN PRINCIPLES

THE SYMBIOSIS OF SALUTOGENIC AND BIOMIMETIC DESIGN

The design of the HPLC recognizes that amongst fundamental causes of health is responding to the innate human desire for **strong connections to the natural world**. These connections to nature are maximized through the diverse means including symbolism, function, planning and aesthetics. The diverse form and colours of South Africa's national flower provide aesthetic and symbolic inspiration, as well as practical and functional guidance, for the design solution.

A symbol of national hope, beauty and harmony, the Protea speaks to the flowering of a great nation. The concept for the HPLC emanates from the organic structure of the Protea, beginning with the central blooming flower, then flowing continuously through the leaves of the plant which spread outward into the landscape.

Anchoring the core of HPLC is the **life-**

affirming architectural flower. Its central location and powers of attraction also call to mind the function of the traditional central community water well, with the flower as the **primary organizing element from which all programs and spaces radiate**. Bathed in sparkling colour and rising upwards to the sky, the bio-inspired flower acts as a **beacon** on the horizon attracting everyone to learn, play and heal within its walls. In doing so, it also acts as a **messenger** to the poor and vulnerable affirming that this is a safe, healthy and accessible environment.

In as much as the Protea's flower attracts pollinators, its leaves perform an equally vital function in the overall health of the plant. Radiating outward from the central core, a network of **separate yet interconnected pavilions**, painted in indigenous earthen colours, supports the rich and diverse range of programs and services that are conducive to life and well being for each community. Programs, such as front-line clinics, dental clinics and education, retail and information

kiosks, organize themselves around the central flower and speak to the historic symbiotic relationship between a town's civic square and its overall health and longevity.

Organic in their form, the pavilions also **mimic processes that occur in nature**, such as directing wind, providing shade, harnessing the sun and collecting rainwater. Overhead, the organic roof structure, consisting of polycarbonate panels, gives the HPLC a translucent glow while also allowing light to filter directly into the buildings below. Additionally, the roofs pull up and away to allow the **natural flow of air** through the interior spaces below. Multi-functional in its ability to morph and adjust to naturally occurring (and man-made) conditions.

The HPLC not only evokes images of nature, it also functions as part of nature.

Extending its influence even further beyond its walls, a collection of peripheral spaces, including vocational training workshops, library, teaching gardens / learning kitchens and an outdoor theatre supports the Centre of Influence model. And while the design incorporates strategies that nature uses to create conditions conducive to life, it also recognizes its **civic role**. Sports fields and children's play areas extend further outward and mimic natural tendrils ever reaching for new life and growth. For access, a number of service amenities are proposed, including taxi waiting areas, bus drop-off and handicapped-accessible routes.

At the core of the design strategy is the ability of the HPLC to transcend the typical models for healing and elevate itself to become a centre for health innovation by means of a salutogenic (health-creating) design approach. In the context of built environments the salutogenic design approach specifically aims

to promote healthy behaviour. A salutogenic building must therefore provide the framework where people can participate in meaningful activities and also provide the physical **infrastructure where healthy behaviour can evolve**.

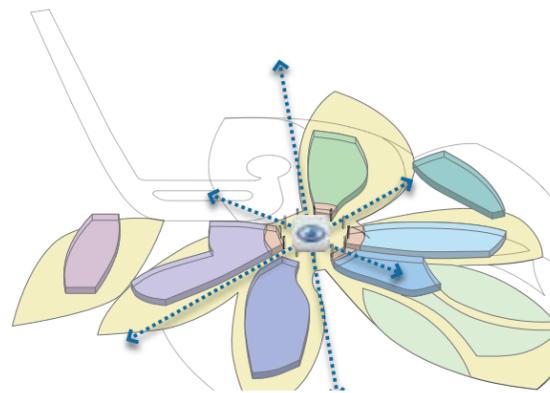
As stated previously, Dr. Antonovsky's salutogenic approach emphasizes the importance of a Sense of Coherence in considering the relationship between health and stress. Our Sense of Coherence is comprised of three elements, each of which increases well being when expressed in the form of the HPLC:

Comprehensibility:

In design, comprehensibility means that the users of a facility can quickly and easily, and with a high degree of confidence, understand the layout of a building and its organization. Conversely, a design that is difficult to understand can cause stress. In the design of the HPLC, several elements work together to create a highly comprehensible, non-stressful experience.

- The central flower is physically and symbolically the hub of the scheme. Flooded with natural light and open to the elements, it is the organizing datum from which all programs radiate and are accessed, and the place through which all major circulation routes pass.
- Functionally, the central flower emulates the characteristics of the local town centre. Rather than being mysterious and confusing, its circular design is a familiar and democratic shape rooted in traditional rural architecture. It is envisioned as a safe and open-air gathering place where women and children can meet much as they have done historically in traditional village life anchored by a community water well.

- The individual pavilions within the composition are positioned to provide unobstructed sight lines throughout the building and always pass through the central flower. For example, direct views from the main entry through the flower to the teaching gardens reinforce the open welcome feeling of the space. Secondary sight lines also exist from within the pavilions to adjacent gardens or play areas. This effort will allow mothers to be in constant view of their children when visiting a clinic or attending a lecture.

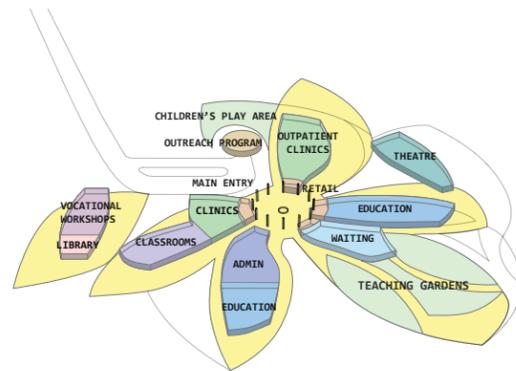


Clear and Unobstructed Sight Lines

- As all primary pavilions radiate from the central hub there is an inherent **predictability, order and functional transparency** in the layout, which will be a key factor in reducing overall user stress.
- Programs within the HPLC are also organized in an organic fashion and radiate outward depending on need and relationship. Programs with a strong relationship to the central flower (clinics, education, retail, mobile phone kiosks, etc) are located in proximity with direct access. Others, such as the workshops or demonstration gardens, occupy a more outward

position. Programs that have a stronger relationship to the surrounding community, such as the soccer pitch, theatre or the playground, occupy a more peripheral position on the outer edges of the site.

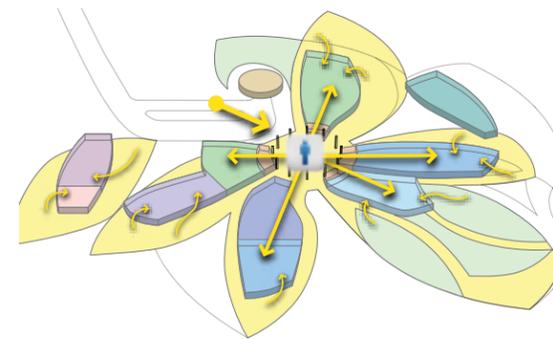
- It is known that access to primary care is a challenge in South Africa. Issues, such as personal safety, distance to the HPLC, costs of transportation and stigma, are all tangible barriers. The HPLC recognizes its target population (vulnerable women and children, the poor and youth) and responds to the issue of **gender-based design**.



Potential Program Blocks

For example, window size, views to the outdoors, size of rooms, spaces for children to play while mothers meet with clinicians, would all increase the notion of safety and privacy and access for women.

- It is anticipated that a number of the users of the HPLC will arrive early, before the facility opens. Again, the central flower is envisioned as a safe and secure gathering place where people are sheltered from the elements during their visit.



Potential Program Blocks

Manageability:

In design, manageability refers to a building's ability to promote independence of movement through the space, rather than being difficult to access and navigate. It aims for independence rather than reliance on others to help, which reduces stress.

- The series of pavilions and spaces is designed to have **multiple points of entry** both for functional practicality and also for security and privacy. Clinics, for example, can be accessed directly from the central flower, while ancillary or support programs, such as offices or education spaces, can be accessed from external points along the circulation network.
- Pavilions also have the ability to be accessed independently. This provides multiple opportunities, including the ability to shut down without impacting other pavilions, and also providing a level of privacy, a key advantage addressing the potential stigma associated with HIV/AIDS.
- Movement through the space is easy to understand and legible as all major routes relate to the central flower. Additionally, the single-storey pavilions are **designed to a human**



Suggested Clinical Layout

scale that does not propose any significant level changes, which is often a significant barrier to perceptibility and accessibility.

- The HPLC understands its target demographic but also recognizes the need for **community outreach**. Provision for a community outreach vehicle, such as the "Tutu Tester" that currently tours Cape Town neighbourhoods, testing over 50 people per day, is included in the design. Such a program would mitigate risks associated with distance and also reduce the social stigma as the vehicle makes available a range of other medical tests beyond HIV.

Meaningfulness:

In design, meaningfulness conveys an intangible but personal message to visitors and staff that they matter and that their lives have great value and purpose, in contrast to a space that is generic or remote and monumental in scale.

- Flooded with natural light, open to the elements and bathed in sparkling colour at night, the central flower will be seen as a beacon that welcomes visitors from all

demographics. Its organic shape and direct reference to the Protea recognizes the innate human need for **strong links to nature**.

- The central flower plays a significant symbolic role in the cultural acceptance and use / success of the HPLC. Referencing the local water well, this is a dominant element in traditional village life. The well is historically the place where women and children travel both for clean water and also as a safe, social gathering place where they are often free to exchange health information and ideas. In some cases, the well was an intrinsic element in the long-term survival of the community. The central flower aims to hold this same cultural and functional presence in the scheme.

Environmental Analysis

The building will be designed to perform and harmonize environmentally with nature in a manner that is consistent with the aesthetic beauty of the flower.

Using sophisticated analysis tools, each potential building site will be analyzed in order to optimally locate and orient the features of the structure to utilize natural assets, such as sunlight, rainwater and the passive heating and cooling features of the land.

Each petal of the building will be subjected to a rigorous series of tests to determine and/or achieve the following salutogenic and biomimetic-based objectives:

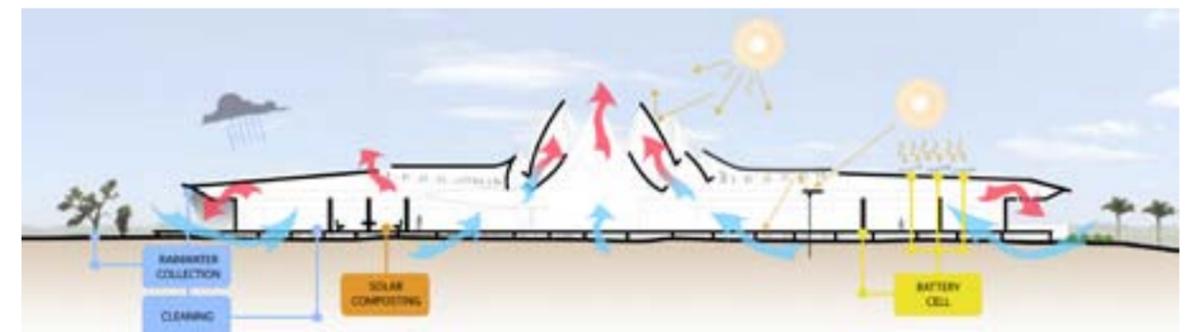
- Optimize the orientation and form of the building
 - o Maximize natural ventilation techniques
 - o Reduce solar heat gain
 - o Reduce lighting load with proper implementation of daylighting strategies
- Adjust the biomimetic roof members to imitate and perform multiple functions
 - o Capture rainwater
 - o Capture sunlight for electricity and hot water use
 - o Green roof design to reflect the

- surrounding landscape as well as act as a high-efficiency thermal insulator
- Captured rainwater can be distributed to serve a multitude of purposes
 - o Irrigation of landscape
 - o Water feature design
 - o Offsetting the building's use of potable water by supplying toilets and urinals

Analysis as to how the building will function in its environment will provide insight, which can inform the shape to fit optimally into its habitat. For example, roof angles will be adjusted to maximize gathering of sunlight, the pitch of the surfaces will be most favourable for rain collection and they will be positioned to gather prevailing winds while sweeping light into the interior spaces for passive lighting.

Further analysis will also determine materials that contribute to the HPLC's design with nature ethos, inform the amount of glazing on particularly sensitive façades and create unique shading devices.

All of these investigative techniques will amplify the intelligence of the building; that is to say, it will demonstrate the application of wisdom beyond aesthetics and function to enhance the building's appropriateness in the land.



Section Showing Sustainable Features

Civil Engineering

The conceptual design can be adapted to a wide range of locations in the same way that its inspiration, the Protea, adapts to varied and harsh environments across South Africa. The context of each new site provides unique opportunities for civil and environmental design. A thorough analysis, from both engineering and natural resources perspectives, will provide the base line for adapting the conceptual design to the reality of the country. Topography, natural conditions and existing infrastructure all play important roles in creating a project that is integrated with the environment.

Site constraints, such as limited public utilities, provide both challenges and opportunities for innovation. The local climate of the Western Cape, for example, offers an opportunity to utilize **rainwater harvesting** techniques to meet the challenge of fresh water unavailability. The team will apply its extensive experience with designing cisterns and non-potable water systems, as well as on-site waste water management systems. Site techniques may include the use of **permeable pavers** that allow rainfall to be absorbed or collected rather than diverted. These methods, when used in conjunction with other wider scale sustainable design techniques, such as xeriscaping or constructed wetlands, offer the possibility of creating an innovative project that is a self-sustaining addition to the area.

With regards to site services, it is important to note that community centres in South Africa

are generally well serviced with amenities, such as good roads, reliable electricity, potable water, efficient sewerage, telephone and data; however, each project's program must be considered in terms of specific site requirements.

Restoration of urban land also offers a great opportunity to enhance the character of the area by creating new natural, native and biodiverse open spaces that surround and embrace the building. It will be necessary to understand the character and conditions particular to the neighbourhood as a means to integrate into and enhance it. This approach will create an enticing destination for residents and an improved environment for the community.

Transportation Engineering

A significant factor in applying a salutogenic and truly biomimetic design approach is to participate in site selection, informed by knowledge with regard to pedestrian and vehicular traffic patterns as it impacts facility design and site development.

Safe access to the site and **safe circulation** within the site are major salutogenic elements in the overall scheme. The site must be comprehensible from a distance. The approach to and movement within the site must be manageable, and the site must send the message that coming to the HPLC will be a meaningful experience, as well as conveying that the individual is important. The selection of the site should incorporate these principles

not just in existing conditions, but with a view to the maintainability and service of the access routes.

Constructability

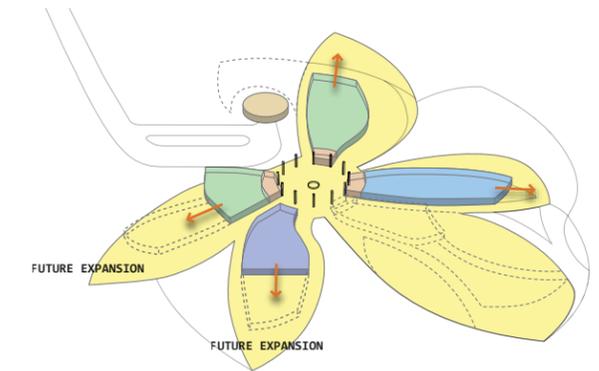
The choice of construction material and methods has been informed and guided by local processes, availability, cost effectiveness and the desire to design with nature.

The central lobby, with its strong language derived from biomimetic design, will be constructed from prefabricated structural steel, crafted timber sections, molded reinforced concrete panels and translucent fabric membrane roofing material. There is ample capacity for delivering the required construction techniques in South Africa.

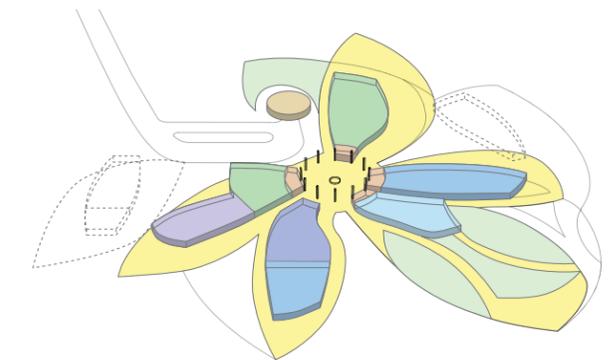
With regard to the pods, in accordance with the sustainability adage 'think global, act local', it will be prudent to use easily available local materials and comprehensible construction techniques within which the various communities that the HPLC will be set up. In South Africa, common construction materials are **bricks and mortar for walls** and iron sheets for roofing. These may be used creatively to construct the pods' naturally drifting walls and leaf roof structures. The use of common local materials and techniques will also go a long way in enabling the various communities to easily add onto the HPLC as necessary to address future growth.

From this, the HPLC is designed to be both **scalable and flexible** with respect to long-term phasing opportunities. Firstly, the principles that drive the concept (access, safety, manageability, etc.) remain in tact regardless of the number of pavilions included or the size of the pavilions. Secondly, the shape of the pavilions is essentially rectangular providing ease of interior space planning and layout.

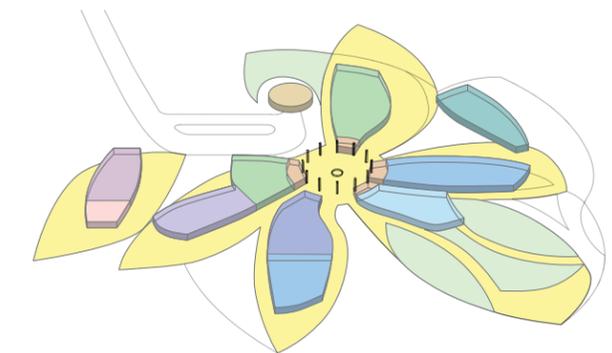
Access to the various pavilions is also available from all sides, thereby adding to



Phase 1 Initial Construction



Phase 2 Future Expansion



Phase 3 Services and Amenities

the planning efficiencies available. Finally, the aforementioned construction techniques are such that **future expansion is achievable without compromising structural integrity, functionality, aesthetics or continued operation of any existing pavilions.** This scalable feature and inherent flexibility is a key element in the success of the HPLC with respect to variations in site and program.

Furthermore, the HPLC must communicate that, even for those who see the project but do not make use of it, the location, the design and its regenerative effect on the environment all reinforce the salutogenic principles in terms of sense of coherence. Careful consideration of the traffic and circulation issues (vehicular and pedestrian) of both users and neighbours to the facility will make this a community icon, which sends the message that one can improve health through design.

Accordingly, this team is eager to participate not only in the traffic engineering for the HPLC, but it is our strong desire that the team be involved in the site selection process as a means to fully apply these principles in an environmental context. This degree of early-stage involvement is an essential consideration in the successful incorporation of true salutogenic and biomimetic principles for the HPLC.

Involving the design team in site selection is an essential consideration for incorporating true salutogenic and biomimetic principles for the HPLC

Structural Engineering

The structural system design will utilize native and locally-prominent materials as each region has its dominant construction materials and skilled trades. The **prefabrication of structural elements** will improve quality, health and safety of workers, reduce material waste and facilitate the economic production of repetitive assemblies. By using prefabricated modular structural elements, the buildings will be assembled in different configurations and arrangements, all while using a limited number of standard modules. In this way, a building can be repeatable, but also modified to fit each varying location.

Plumbing, Mechanical, Electrical Engineering

Requirements for quality drinking water, strategies for dealing with affluent and excess water runoff, water conservation, ultra high-efficient plumbing fixtures, **rainwater harvesting, grey water re-use and solar water heating** will be addressed.

Outdoor air will be provided primarily through **natural ventilation** and the placement of architectural openings to maximize the flow through the spaces.

Research has shown that operable windows and doors maximize natural ventilation so that the risk of airborne contagion is much lower than costly maintenance regarding mechanical systems. Areas with high ceilings and large windows provide the greatest protection and a relatively maintenance-free solution in those settings where the resources are often limited.

Limited refrigeration and mechanical cooling will be provided through ground-source heat

pumps with excess heat rejection used to heat domestic water. Ground heat rejection will reduce the noise impact around the building. Condensate will be collected and routed to the grey water tank for building use. Variable speed fans will be utilized for exhaust and any air distribution to minimize energy consumption and improve acoustics.

Energy needs will vary depending on location. The HPLC will utilize passive techniques, such as insulation, to minimize heat gain and heat loss and natural daylighting as a primary means of light during the day. Where power is not provided by others, the HPLC will have the ability to be self-sufficient by using solar panels and/or wind turbines.

Breakdown of Gross Floor Area as Configured on the Site Plan

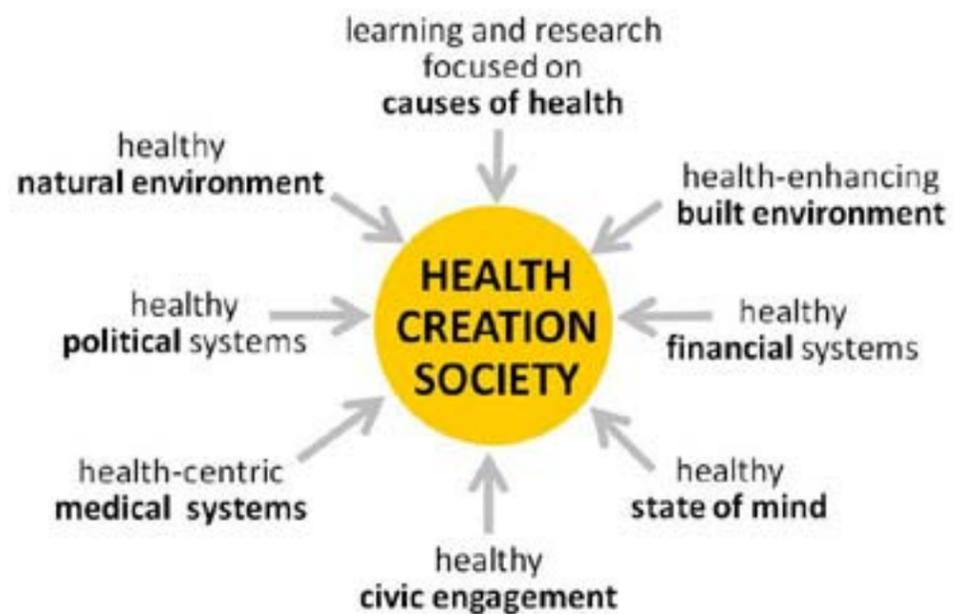
Info / Public Amenities	169sqm
Administration	71 sqm
Outpatient Clinics	360 sqm
Multi-purpose educational spaces	38 sqm
Workshops	128 sqm
Retail	258 sqm
Library	71 sqm
Offices (small business, etc)	213 sqm
kitchen, theatre, soccer pitch, water feature, worship/meditation	Outdoor features
Total estimated area:	1608 sqm

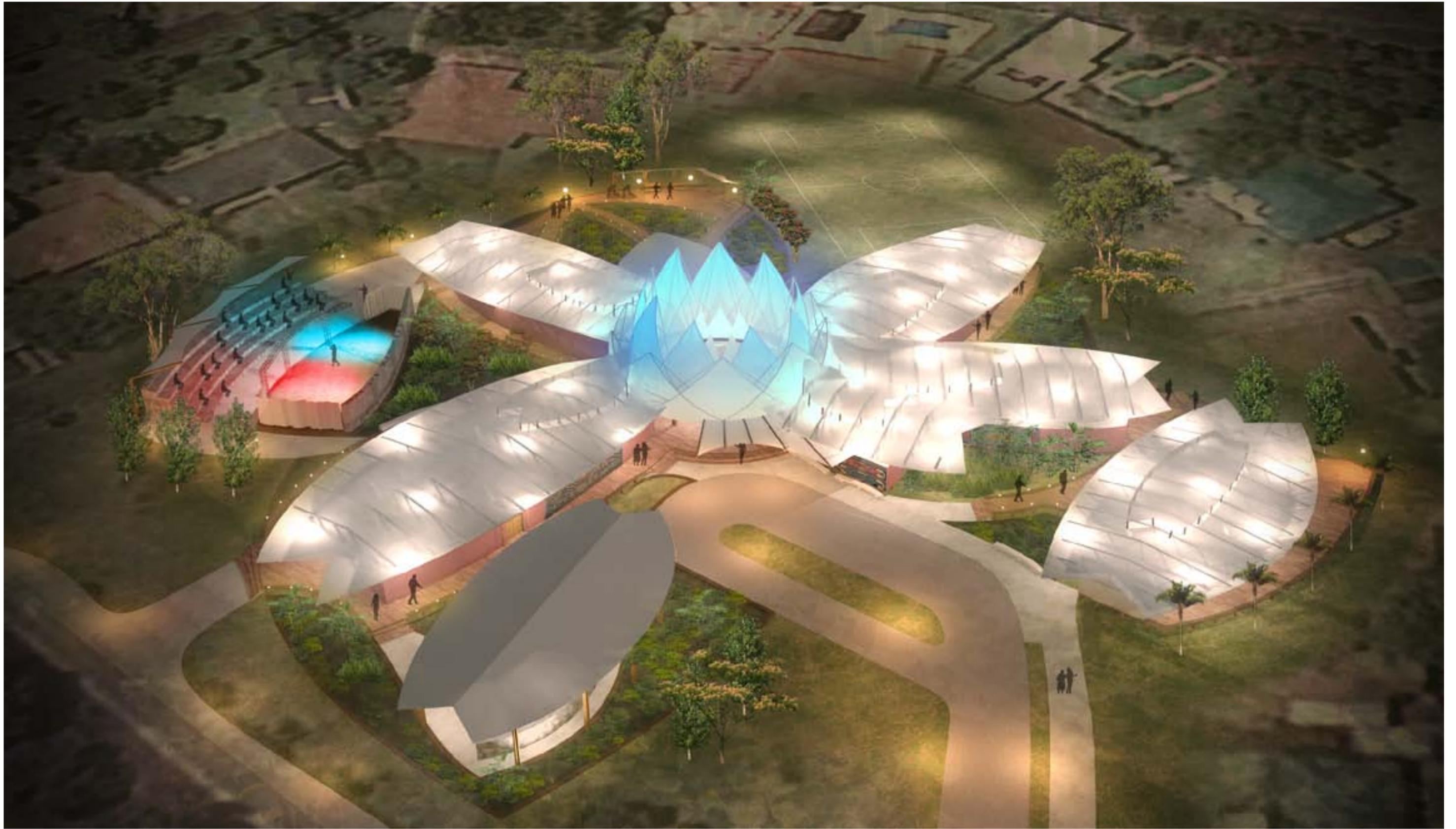
Which country will lead the world in making the leap upstream to creating health?

The Health Promoting Lifestyle Centre will serve to accelerate implementation of the South African Government's Millennium Development Goals. The time is right for innovative partnerships and visionary design that changes how people think about their health and their lives. As governments and communities everywhere seek to reduce the financial and psychosocial burden of disease, South Africa has an opportunity to lead the way in creating an **open opportunity society** for all.

These stirring ambitions will not be achieved through incremental improvements to current models of addressing ill health. A dramatic new approach, blossoming from the fertile ideas offered by salutogenic and biomimetic design perspectives, will demonstrate how to design beautiful, practical infrastructure that not only promotes health and prosperity, but also delivers it.

This design will capture the imagination of governments, communities and individuals around the world as a potent, tangible means to dramatically reduce the burden of disease.





Aerial View of HPLC at Night



View of Approach and Main Entry to HPLC



View of Life-Affirming Central Flower



View of Central Flower from Teaching Gardens



View of External Meeting Area



View of Theatre and Outdoor Lecture Area



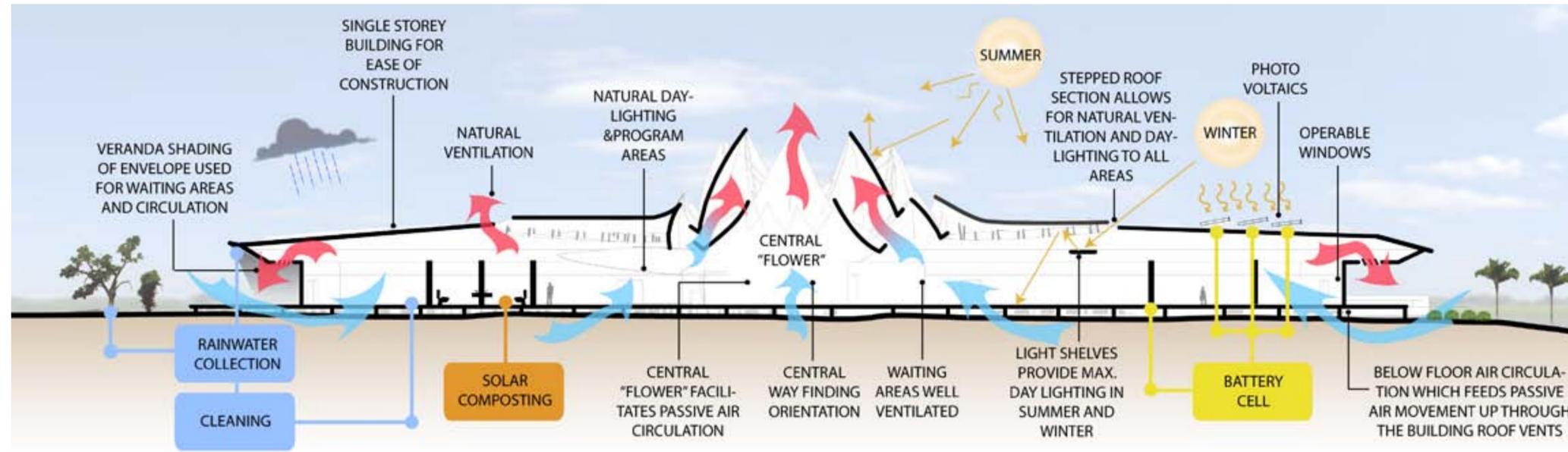
View of HPLC in Rural Setting



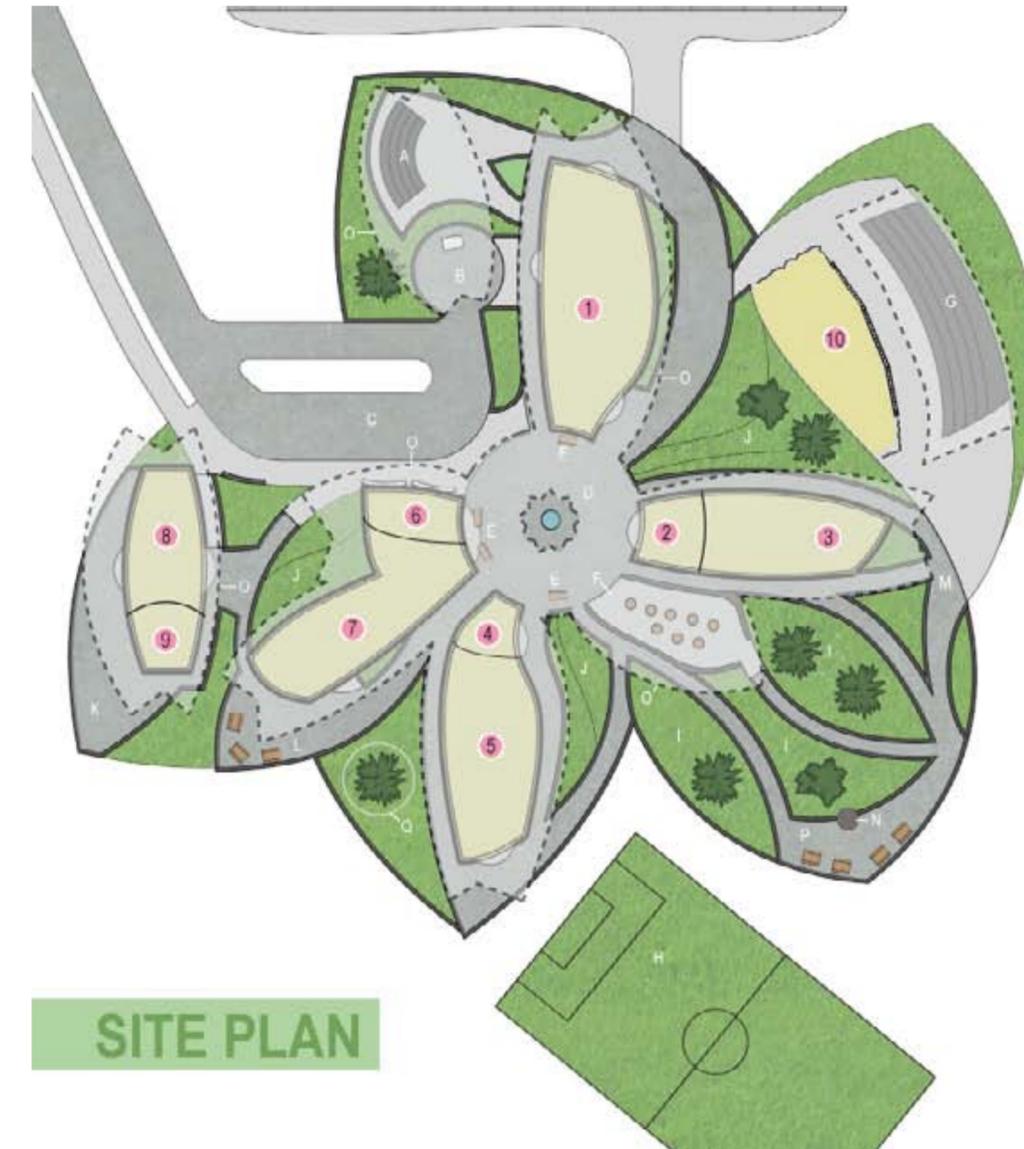
View of HPLC in Suburban Setting



View of HPLC in Urban Setting



Building Section Illustrating Potential Sustainable Features



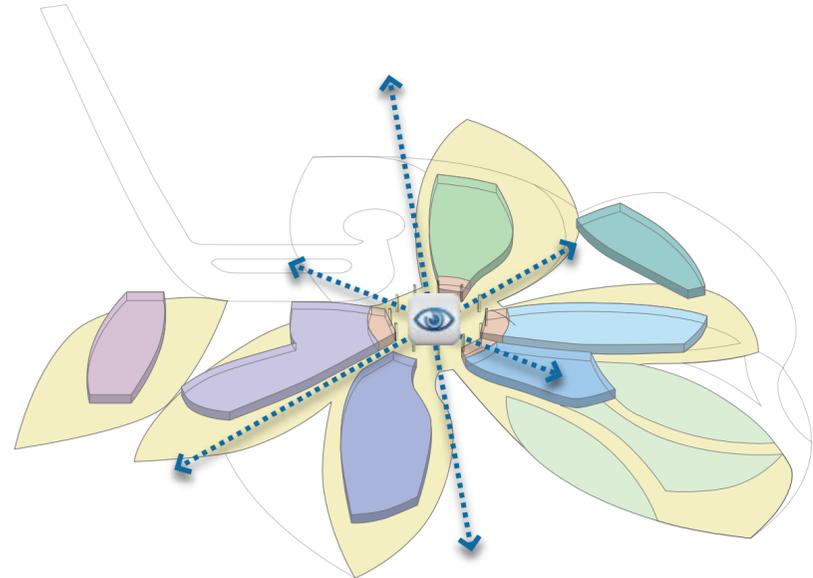
Site Plan Illustrating Potential Programs and Services

OUTDOOR

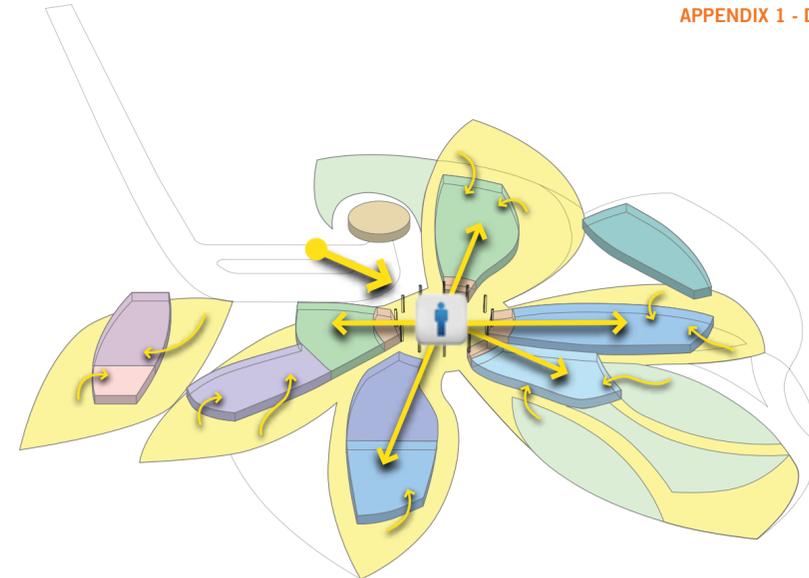
- A Children's play area
- B "Tutu tester" bus parking
- C Bus/Taxi drop off
- D Central "flower" gathering space and waiting area
- E Retail market kiosks
- F Sheltered waiting area
- G Seating
- H Recreation / Fitness
- I Teaching garden - tree nursery management & training, reforestation, soil repair education
- J Small garden
- K Worship/meditation area
- L Activity area
- M Loading area
- N Bread oven
- O Covered primary & secondary waiting and circulation areas
- P Learning Kitchen - proper nutritional counselling, hygiene awareness, cooking practices, food preservation education
- Q Sewing circle

INDOOR

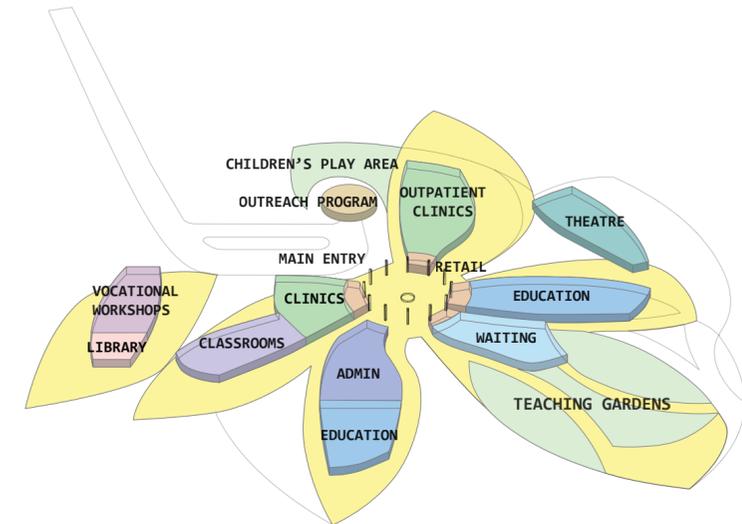
- 1 OUTPATIENT CLINICS**
Antenatal clinics
Immunization clinics
Antiretroviral treatment progress
Dental clinic
Eye clinic
Blood pressure testing
Obesity clinic
TB / HIV / AIDS testing
Traditional healing clinics
Maternal health clinic- breast-feeding clinic, antenatal clinic
- 2 RETAIL**
Eyeglasses
Pharmacy
- 3 EDUCATIONAL SPACES**
Family planning/reproductive rights
Counselling services
Micro-financing
Alcohol/addictions
Substance abuse clinics
Mental health
- 4 ADMINISTRATION**
Health records
Purchasing
- 5 EDUCATIONAL**
Medical education training (Lay Health Workers)
Community meeting spaces (sanitary committees)
- 6 INFORMATION & PUBLIC AMENITIES**
- 7 CLINICS & CLASSROOMS**
Train the trainers program
Career counselling
Integrated treatment program (HIV & TB)
- 8 WORKSHOPS**
Vocational training for women
Sustainable farming
Malaria net installation workshops
Safe sex workshops
Water testing
Sanitation technology workshops
Energy saving stove technologies and workshops
- 9 LIBRARY**
- 10 THEATRE**
Use of song, dance, drama to make healing, lifestyle and education more relevant to youth
Sex education
Gender-based violence



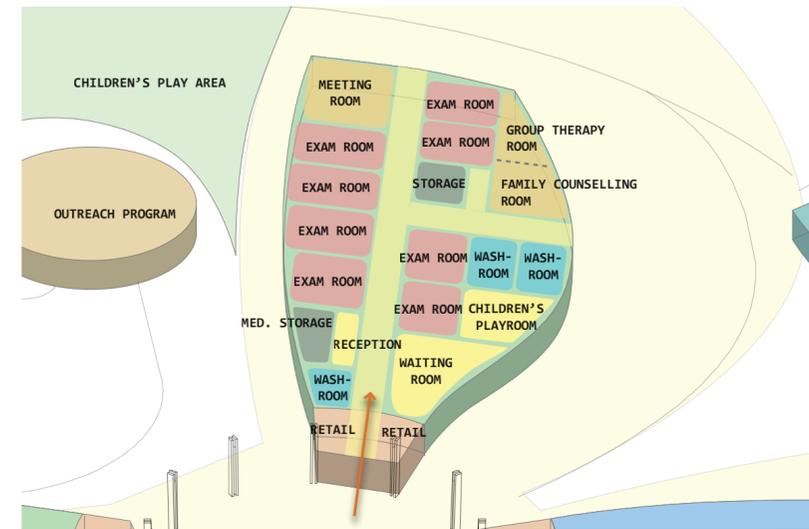
Clear and Unobstructed Sight Lines



Primary and Secondary Circulation Routes



Potential Program Blocks and Services



Suggested Clinical Block Layout

Cost Summary

Number	Item	Estimated % of construction	Rand
1	Substructure	4%	643,200
2	Superstructure (structural elements)	20%	3,216,000
3	External cladding, including wall and roof coverings	12%	1,929,600
4	Windows and external doors	5%	804,000
5	Internal fit-out	22%	3,537,600
6	Energy sources and renewable technologies (including water recycling, etc)	8%	1,286,400
7	Landscaping / hard surfaces	5%	804,000
8	Any other elements (electromechanical works)	24%	3,859,200
9	Sub-Total	100%	16,080,000
10	Add 14% Value Added Tax (VAT)	14%	2,251,200
11	TOTAL BUILDING COST (Incl. VAT)		18,331,200
Add			
12	Fittings and Furnishings	SUM	1,200,000
13	Landscaping	SUM	800,000
14	Escalations: 12 months to implementation @ 8% p.a.	8%	1,466,496
	Sundry costs, e.g. licenses and applications	SUM	200,000
15	TOTAL COST		21,997,696
			US 2,819,742
			CAD\$ 2,873,153
			AUS\$ 2,831,582
			EURO 2,071,160
			BRITISH POUND 1,797,251

Exclusions

Land cost

Finance costs (cost of borrowing etc.)