Khasab Contemporary Architecture

Exploration of Heritage and Modernity in the Arabian Gulf
Figure 1. Cover photograph - Khasab Castle
Khasab Contemporary Architecture

Exploration of Heritage and Modernity in the Arabian Gulf Context

ABSTRACT

When there is an increase in the development of infrastructure and technological advancements, it typically indicates that there is some level of social progression in a society. The changes since the discovery of oil in the Arabian Gulf have caused a huge step forward in economic growth of the region and this revenue is the key for population growth as well as a boost for new opportunities, many of which were not available before. This includes the rapid growth in the tourism sector. While this is extraordinary, the speedy rate of modern development, (generally focused on economic output) causes a disconnection between buildings, the environment and the cultural aspects of life.

In a quiet location in the gulf, in the Sultanate of Oman, new building schemes are emerging, gradually following in the footsteps of typical modern development. The focus of the new proposals here are largely in favour of the tourism industry in order to generate income, so that the revenue will continue to add wealth to the population in the future (to replace dependence oil). The awareness of the public on new developments and the skilled work needed to intensify growth moves at a slow pace compared to the amount of new construction.

Khasab, a small town in the Sultanate, is one of the locations nominated for the tourism governmental plan. The plan aims to intensify tourism and increase opportunities that would ideally serve the local population. This project proposes an exemplar architectural solution that focuses on providing services to the local population by finding a solution to the lack of a town centre. An investigation will be carried out to understand the relationships between heritage, people and the environment as critical design factors for the planning of developments. The result will attempt to demonstrate an alternative contemporary model without damaging the cultural heritage and to display harmony with the environment. The project anticipates a potential transformation in the notions regarding the built environment in Oman, and possibly in the rest of the Arab Gulf.
Preface

During my three week research trip to Oman and the United Arab Emirates in 2016, I tried as best as I could to analyse how people interacted with buildings and the surrounding environment. At one time, I was trying to decide whether a 1980’s inspired multi-storey building appeared more desirable than its neighbouring glass covered building built around 2010. I asked my brother which building he would prefer (as a resident of the country). He immediately answered, “the glass building looks better”. I asked why and he explained that the glass building was new. It looked better because it was advanced in terms of construction techniques and materials hence giving it a progressive appearance. From our short discussion, I felt from his tone that the 1980s or 1990s inspired building symbolised the ‘old’ way of life and was irrelevant to the current generation.

I do not recount this conversation to judge my brother’s taste, but to express a common mentality among many people in the Arab world that associates any new or ‘modern’ material with something positive. I also learned that discussing the threats posed by limited economic support, environmental sustainability and loss of heritage is not always fully comprehended by others, as they assume that this suggests giving up entirely on their current lifestyle and returning to the old way of life.

The driver for this project is my aspiration to increase people’s awareness, by physically demonstrating that technology can be translated into regionalized terms that support the climate and the people, as opposed to changing people’s habits for the sake of technology. Applying systems to avoid damaging outcomes does not result in people going backwards; it is fundamentally moving society forward. It may however propose a loss of aspects of the new, more luxurious lifestyle.
Glossary

<table>
<thead>
<tr>
<th>Arabic</th>
<th>English</th>
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<td>عريش</td>
<td>Arish</td>
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<td>Bait Al Qufl</td>
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<td>Birkat</td>
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<td>فلج</td>
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<td>مجلس تعاون دول الخليج</td>
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<td>منارة</td>
<td>Minaret</td>
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<tr>
<td>وادي</td>
<td>Wadi (Pl. Wadis)</td>
</tr>
</tbody>
</table>

A dwelling made from palm fronds.
A dwelling made of stone, also called ‘house of lock’.
Traditional cistern to “collect and store water”.¹
Traditional water canal system.
Gulf Co-operation Council, includes Oman, Saudi Arabia, Qatar, United Arab Emirates, Bahrain and Kuwait.
Acronym for ‘His Majesty’.
A town North of Oman, in the Musandam Peninsula.
An Emirate of the United Arab Emirates.
Mountain.
Meeting, refers to seating room or area.
A niche within a wall that faces the direction of Mecca, used in a mosque.
Tower from which the call of prayer is made, part of a mosque.
A valley, sometimes refers to a riverbed that is dry most of the year.

Acknowledgements

I would like to thank;

My tutor who listened to me and helped to improve my project;

my friends and classmates for their advice and motivation;

my family for encouraging me to continue my studies, especially to my parents;

who dedicated their time and effort towards me (and my siblings) to obtain a higher education.
اود ان اشكر؛
المعلمين الذين استمعوا و ساعدوني على تحسين المشروع لي.
اصدقائي وزملاء الدراسة للحصول على مشورة والتحفيز.
عائلتي لتشجيعهم لي لمواصلة دراستي ، وخاصة والدي، الذي أعطى كل وقته وضمه لأولادهم في الحصول على التعليم الجيد.
Figure 2. Waterfall over Khasab rocks created by flash flooding
“...And placed therein firm lofty mountains (serving as water reservoirs), and given you fresh water to drink....”
The Qur’an, 77:27
Figure 3. Musandam lookout
1.0 Introduction

1.1 Research Question
1.2 Background
1.3 Project Outline
1.4 Aims & Objectives
1.5 State of Knowledge, Existing Sources
1.6 Scope & Limitations of Research

How can civic space in Khasab introduce an alternative architectural model, while responding to the cultural and environmental demands?
1.2 Background

As more cities are introduced to the modern world, they develop to meet new standards and to improve their conditions. In the Arab region, the practice of modern sustainable design is recent. The architectural practices that propose this type of solution to future buildings in Oman base their typology on the techniques found in existing heritage buildings, together with a mix of western green standards. The word sustainable in this project refers to joining safe methods of construction with social life. Islamic principles are closely related to current sustainable standards, in terms of saving resources and reducing the need to use resources when possible. Though the rules may not directly refer to construction, the understanding of certain rules are used as a guide to plan certain aspects of a building. The principles relevant to building sustainably include:

- Limiting the waste of existing resources and waste output.
- Re-using resources for efficiency.
- Supporting the development of land by regulating organisations and companies.²
- Encouraging individual vendor markets.³
- Generating a mixture of economic classes and ages in communities where everyone collaborates⁴ to maintain the organisation of a neighbourhood.

These guidelines start to shape the architectural design areas of planning and buildings.

Associated with saving and reusing resources, water is a topic to be considered. It is one of the most important resources globally and demand increases as more cities get built. It is especially crucial to Oman, where water resources are diminishing. Reasons for this range from high agricultural use to the misuse of existing clean water. The use and treatment of water expresses the way people live and their philosophy regarding the resource, and reveals their knowledge, or lack of it, around that resource.

³ Ibid., 251.
⁴ Ibid., 251.
Figure 4. Corrective developments in the West (since 1960)

Figure 5. Diagram showing outcome of project
Islamic principles are applicable to the everyday use of water, and will greatly serve in persuasion of designing architecture that will value its application in relationship to the people and environment. This can aid in terms of encouraging people to become more aware of the value of this resource and applying efficient techniques in practice.

Optimistically, the future treatment of water in Oman will demonstrate techniques of saving water that sustain communities, with methods of a positive modern practice.

1.2 Project Outline

The idea of this project is to propose a Cultural Centre as a solution to the lack of buildings that serve Khasab, and as an alternative model to the existing buildings. An investigation will be made to review the existing conditions, what technology is available and suitable, and how these can be combined to add value to the built environment rather than decreasing it. A careful integration of social activities will be planned to create a hub for all ages to enjoy activities, share thoughts and collaborate. These activities will provide support for people to find hobbies or even to start a small business in a traditional fashion within the building. A marketplace can be sustained by large tourist numbers, or by the local population. Water will be used as a playful natural element to connect the community to the outside environment. It will be utilised in a way that displays the importance of conserving the natural environment. Together the techniques will display a different meaning of social progress, one of technology in harmony with the context.

It is important to note that the new building does not need to be historically representative of heritage buildings, as it will represent a way of thinking of the current generation, the contemporary.

1.3 Aims & Objectives

- Identify the significant elements of heritage, rituals and the growth of villages in the region. (History and heritage study).
- Explore use of new (suitable) technology, building methods and social activities that encourage populations to reside in Khasab. (Precedents).
- Determine how the above aims can be expressed and integrated with new technology in architectural terms. (Precedents + history + heritage study = design approach).
- Plan and design a social/civic development that will harmonise with the landscape, please the population, and justify how it will redefine the historical relationship between landscape and people. (Developed design + theory).
1.4 Stage of Knowledge, Existing Sources

Projects from Khasab and a generic Oman typology were reviewed to develop an understanding of the existing architecture and development proposals. Statistical and background information was readily available for some aspects of the project (for example water resources and maps) from Oman’s government websites. Individual researcher’s papers were examined to grasp an idea of Oman’s environment. A combination of photographs and existing conditions defined most of the contextual study, and the resulting analysis was used to find what problems exist in relation to Khasab in order to be solved efficiently. Cultural centres are a recent typology in the Arab Gulf region. To make up for the limited information on the topic, projects from other countries were explored. Where appropriate, technological aspects are included from precedents worldwide to aid the design of the proposed cultural centre.

**NOTE:** The mention of other proposed or existing developments is included to help the reader understand the context. Criticism of building styles has been made to understand issues, not to find fault.

1.5 Scope and Limitations of Research

Exact data and population surveys are lacking in this area, especially articles or research that includes people’s perception and opinion on certain issues. I lived in a town three hours away from Khasab which made me familiar with the culture so I have a good understanding of how the rules and lifestyle work. On my site visit I took many photographs, and observed and asked about different aspects of Khasab to gain an understanding of the nature of the town. This visit gave me a better perspective on the sensibility of ideas to be proposed for the site within the context.
List of maps throughout document
Figure 6. The traditional arch in contrast to modern development in the background
2.0 Modernity, Intensification

2.1 Modernity in the Arab Gulf
2.2 Oman
2.3 Educational and the Civic spaces
2.1 Modernity in the Arabian Gulf

2.1.1 History

It is important to understand the historical context and the current political, social and historical situation of Oman to articulate a realistic building plan. These are the events that shaped the region.

The discovery of oil caused drastic changes to the previously nomadic social character of the Arabian Gulf. With this resource, people could acquire what was not possible before. Before they formed country borders, the lower states of the Arabian Gulf were named the ‘Trucial States’ in 1819 by the British.\(^5\) Pearls were previously the most valuable trade resources\(^6\) along this coast; however ‘Black Gold’ (oil) replaced this resource. The transformation of the landscape and of building technology was analogous to the change in people’s lifestyle. For instance, the introduction of the air-conditioner meant that life was much more bearable in a 50°C zone – one of the main causes of the historical isolation of the Arabian Gulf. This meant that an ideal, comfortable lifestyle was possible, for both locals and expatriates.

Many developments commenced in the 1970s, also a time when country borders were established in the desert. Countries were heavily dependent on foreign labour to expand since the existing populations could not support the size and rate of developments. With economic growth, people from distant countries became interested in what would become some of the fastest built cities in the world. New settlements and new groups of people were introduced into the region, eventually starting their own families and slowly mixing with the existing population. Rapid construction of buildings followed, causing international interest, both in the news and for tourist visits. The new image of this region was to be a ‘modern, civilised and fun’ society where everyone could live together in harmony (judging by the advertisements of the time).

Figure 7. Arabian Gulf on World Map

Figure 8. Map of the Arabian Gulf
The technology and speed of change represents social progression to the general population. While it is true that many more opportunities now exist for residents than before, social progress is only understood in technological terms – an image of architecture that conveys advancement. Along with technology, educational programmes are set up as the population grows. Education usually take place through schooling, while informal learning such as debate is not part of the curriculum. Public knowledge regarding modern building technology and the availability of resources is somewhat limited; thus the building boom does not correspond to every aspect of lifestyle. In Europe for example, the industrial revolution was the result of many discoveries in science and technology. Although many impacts of the revolution were negative in the early stages, many critics formulated theories on ways of achieving cultural development and improvement that corresponded to the level of technological advancements. The changes after the industrial revolution resulted in political modifications such as granting rights to working classes and the recognition of women’s rights.

2.1.2 Social Progress

Progress is defined as “development towards improved or more advanced condition”. Social progress is the ability of a society to advance their social, political, and economic organization. Progression in the Gulf occurred at the same time as building and infrastructure commenced. Buildings and infrastructure facilitate society’s progress by providing services and opportunities. A way of understanding social progress can viewed on the Social Progress Network, an organisation that provides an index to measure social progress (to improve human wellbeing). It is not devoted to architecture, but it offers an understanding of social progress in terms related to the human well-being. The Index provides a rating of all countries in the world with the highest containing most social progress, and displays how these ratings are achieved in every country. The ratings are separated into three categories; basic human needs, foundations of wellbeing and opportunity. Each category is then divided into subheadings for further evaluation. Some developing countries however do not give out full data on these needs either for political reasoning or simply lack availability of statistics.

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This index presents a more rational understanding of social progress, better than one that measures the amount of construction in a country. The three categories that are essential to human needs correspond closely to Maslow’s popular theory. In his paper “A Theory of Human Motivation”, Maslow places physiological needs at the bottom of the triangle, whereas esteem and self-actualization are at the top. Thus, when physical needs are acquired, a person will progress to the next level up. This psychological approach is applicable to all human beings, without any bias. The index gives a convincing reason to re-evaluate the notion of development, both social and built in the Arabian Gulf. Unfortunately, Oman’s data is incomplete so it is not included on the Social Progress Index. Either way, Oman’s social progress could benefit from the list by analysing how the leading countries have achieved a high rating. The objectives of the Social Progress Index can be incorporated in the proposed Cultural Centre’s design by reviewing those areas that lack improvement - see Figure -. (Further explored in 6.0 Design part of the document).

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<td>New Zealand</td>
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Figure 22. Top 10 countries on the Social Progress Index

Figure 21. Social Progress Index vs GDP per capita, Oman speculated in red zone
The recognition of these rights are not always acknowledged based on the data for all Arab countries put together.
2.1.3 Change of place, change of thought

There is no doubt that a change in physical surroundings reflects a change in the way of thinking. “First we shape our buildings, then our buildings shape us” – Winston Churchill. This statement was used as a defence when rebuilding the same plan of the House of Commons Chamber, after it was bombed during World War II. His justification was that the previous plan contained the ‘essence of the British parliamentary democracy’. In completely different context, among the indigenous Brazilian Bororo hunter-based clans, the Salesian missionaries found that:

“The surest way to make the Bororo convert was to make them abandon their village in favour of one with the houses set out in parallel rows”. Bororo clans lived in circular settlements, an “idealistic plan of their ancestral village in the upper world” which was a representation of their social and religious values. This was in contrast to the missionaries’ houses, which were built in rectangular parallel rows based on western standards.

From the examples above the importance of physical context is clearly represented in terms of its association with human behaviour. The experiment also points out that the new architecture can be perceived as a “prestigious system with ‘modern values’”. The context of the Arab Gulf is different to that of the Bororo clans and British parliament: however, the implication remains the same - extreme changes in architectural designs can change human behaviour. This could be a negative or positive effect depending on how it is used. In a publication by a firm in the Arab Gulf, the changes in architecture are noted in relation to how the architecture is becoming a “cookie cutter” typology, where any style in the world is simply replicated in the Gulf, either because the developer wishes it or for other egoecentric reasons. “The Gulf is turning to look like anywhere but nowhere”. It raises questions about whether the current society is acting as a civilised one simply because they can afford to do so. The “cookie cutter” typology is not only evident in the skyscraper typology of modern design, but parts are also evident in the modern understanding of the sustainable style emerging in the Middle-East, with its own cut and paste designs. These styles seem to follow climates unsuited to the heat and some contradict the label ‘sustainable’. The use of the word ‘green’ in some of these countries does not even fit within the context as the region is a landscape of sand and rock. Green implies the introduction of more green space in this hot climate, which is not always desirable.

10 Ibid.
15 Ibid., 4.
16 Ibid., 4.
Figure 24. Figure showing layout of Bororo housing complex

Figure 25. Figure showing plan of Virginian house

Figure 26. Tract housing development in comparison to cookie cutter template

Figure 27. Cookie cutter template
Perhaps the most common principle in relation to sustainability is the creation of zones in architecture from “public – semi-public – semi-private – private” to “achieve efficient space use.” It allows an organized allocation of activities to take place in a neighbourhood or town. In the Islamic world (before modernisation) town planning was structured, on a type of loose grid. This is the opposite of the current modern block building plans where a square restricted grid applies to town planning and each building is alienated from its neighbours.

Figure 29. Transformation of traditional town by modern traffic planning in 3D perspective
2.2 Oman

Oman was chosen for this project as it is a country in the Arab Gulf with an advanced strategy in terms of development. Oman’s modern movement has proved that the built environment and people’s growth are equivalent. Recent building schemes demonstrate Oman’s desire to use sustainable strategies and to find new revenues other than oil. The history of country provides indications of how education became the development tool to achieve successful progression in society.

2.2.1 History

Oman’s history goes back to a period before the Trucial coast was given its name in 1853. The character of the country is defined by fortified, mud-brick architecture, with wadis, rock mountains, periods of monarchs, and Islam with a slightly different interpretation to that of its neighbours. Oman benefited from its extended shoreline for many centuries, attracting merchants from Africa to the west, from India and China along the east coast and from Iran to the north-east. During the 7th century CE, Oman converted to Islam, following their neighbouring countries. A range of rulers, or Caliphs (that were part of the larger Islamic Empire), were appointed from the Islamic City, Medina to rule over or advise on their concerns. From 751CE Oman developed their own Islamic traits, appointed their own Imams (spiritual leaders) and discontinued the practice of bringing Imams from Medina, until a monarchy started around 1154. That gave Omani a choice of “elective theocracy”.

There were continuous struggles between the Imam and the King in each century, similar to the disputes between Archbishops and Kings in European history. During the 16th century the Portuguese gained control over Muscat and neighbouring region (mainly along the coastline). “This control is strengthened after 1514, when they capture the island of Hormuz and plant a permanent garrison there”. The battle of revenge started around a century later, when Imam Saif bin Sultan started fighting to gain control of Oman. The fight continued down to Zanzibar and other areas under Portuguese control in Africa, and it was passed from the Portuguese to Saif bin Sultan after many battles were fought. The Omani Empire had extended to the eastern coast of Africa after the Portuguese were defeated.

19 Ibid.
Figure 32. Muscat traditional and modern settlements
After a prosperous life in Zanzibar, in 1856CE the lands gained in the African continent were split from Oman. A heredity line, was established in Oman with the help of the British, and once again caused some rivalry between Kings and Imams. The Imam at this stage controlled the interior regions of Oman along the border of Saudi Arabia. The tribes of the interior region attacked the Sultan’s coastal territories from time to time, as Oman was not a unified country at this stage. The attacks were over a dispute on the granting of oil to the British.

By the 1950s aid from Saudi Arabian forces combined with the Imam’s forces in the hopes of establishing a state in the interior region independent from the rest of Oman. This was put to rest with the help of the British and other foreign support. After this event, Sultan Said, who was in charge of the coastal region, feared other uprisings and his worry affected the public. The wealth of oil could have resulted in a great change in the region; instead the country witnessed a serious decline into a darker age in the years between 1950-1969. Strict laws were established to ensure security in the region, which also made it almost impossible to live. “It was forbidden to smoke in public, play football, wear sunglasses, or speak to anyone for more than 15 minutes”.

H.M. Sultan Qaboos, his only son, placed his father under house arrest in a bloodless coup, again with the help of British, Iranian and Jordanian troops. H.M Sultan Qaboos’ education in England and India assisted him in stabilising the country and establishing rule. Oman was finally united as one country, without referring to interior and the coast as separate regions. Unity also meant that the Sultan had the final say on all affairs including religious matters, where previously the Imam had direct influence in that area. The aim of the coup was to end isolation and use the country’s oil wealth to develop and upgrade people’s lives. 23rd July 1970 was the first day of the Omani Renaissance. It is now a national holiday marking the modernization of the country and the first day of H.M. Sultan Qaboos’ reign. Oman maintained peaceful ties with many countries regardless of conflict in other Arab countries.

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21 Ibid.
Beginning of Islam in Oman.

Ibadiyah Islamic sect begins in Oman, with spiritual leaders chosen from Oman rather than from Mecca.

Portuguese capture Muscat, then went onto capturing the Strait of Hormuz. Portuguese settlers build forts during their stay. The Portuguese hold a strong position in the sea-trade.

Banu Nabhan creates a rule of “hereditary kings”.

Imam Sultan bin Saif Al-Yarubi banishes the Portuguese.

Imam of Oman (Saif bin Sultan) travels to African East coast – Zanzibar to take over Portuguese settlement. It falls to the Omanis during this time and becomes a major slave market.

Al Bu Sai’d dynasty starts.

British establish Oman as a protectorate.

Pirate Sheikhs with Wahhabi protection attack the East India Company trade route. Britain allies with leaders of Muscat and Oman (then separate).

Sai’d bin Sultan makes Zanzibar his main residence and improves the economy while building palaces and gardens.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<td>1853</td>
<td>Oman signs Treaty of the ‘Trucial States’.</td>
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<td>Omani empire splits Zanzibar from Oman, after a dispute between two sons of Sai’d bin Sultan.</td>
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<td>1907</td>
<td>British force Sultan of Zanzibar to ban slavery.</td>
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<td>1913</td>
<td>Split power in Oman between Imams ruling interior region (Nizwa), and Sultan ruling coastal region (Muscat).</td>
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<tr>
<td>1925</td>
<td>First Geological Survey to investigate possibility of oil</td>
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<td>1954</td>
<td>Campaign started by Imam (with help of Saudi Arabia) to rebel against the Sultan to become independent.</td>
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<td>1955</td>
<td>Oman, Muscat and Nizwa become a single state.</td>
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<tr>
<td>1956</td>
<td>Oman, Muscat and Nizwa become a single state.</td>
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<tr>
<td>1967</td>
<td>First production of oil in Oman.</td>
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<td>1970</td>
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<tr>
<td>1982</td>
<td>Oman introduces an environment law, a first in the Arab Gulf.</td>
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<tr>
<td>1996</td>
<td>Omani citizen population reaches two million.</td>
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<tr>
<td>2007</td>
<td>Cyclone Gonu – largest in 60 years with 49 deaths and 20,000 homeless.</td>
</tr>
<tr>
<td>2010</td>
<td>Cyclone Phet, 24 deaths.</td>
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Regions;
Oman’s landscape is defined by diverse geographical conditions, though mostly of the same temperatures.

- Interior Oman - desert/ mountains
- Coastal Oman - sea/ mountains

Figure 33. Al Buraymi
Figure 34. Al Batinah
Figure 35. Al Dhahirah
Figure 36. Al Dakhiliyah
Figure 37. Al Wusta
Figure 38. Map of Oman with regions
Figure 39. Musandam

Figure 40. Muscat

Figure 41. Ash Sharqiyah

Figure 42. Masirah Island

Figure 43. Dhofar

Figure 44. Section A-A
Timeline: (will include graphics in final layout)

ca. 700CE Beginning of Islam in Oman.²⁴

ca. 800CE Ibadiyah Islamic sect begins in Oman, with spiritual leaders chosen from Oman rather than from Mecca.²⁵

1507 Portuguese capture Muscat, then went onto capture the Strait of Hormuz. Portuguese settlers built forts during their stay. The Portuguese hold a strong position in the sea-trade.²⁶

1154 Banu Nabhan creates a rule of “hereditary kings”.

1650 Imam Sultan bin Saif Al-Yarubi banishes the Portuguese.²⁷

1698 Imam of Oman (Saif bin Sultan) travels to African East coast – Zanzibar to take over Portuguese settlement. It falls to the Omanis during this time and becomes a major slave market.²⁸

1737-49 Persian Invasion of Oman²⁹

1744 Al Bu Sai’d dynasty starts.³⁰

1798 British establish Oman as a protectorate.³¹

1815 Pirate Sheikhs with Wahhabi protection attack the East India Company trade route. Britain allies with leaders of Muscat and Oman (then separate).

1837 Sai’d bin Sultan makes Zanzibar his main residence and improves the economy while building palaces and gardens.³²

1853 Oman signs the Treaty of the ‘Trucial States’.³³

1856 Omani empire splits Zanzibar from Oman, after a dispute between two sons of Sai’d bin Sultan.³⁴

1907 British force Sultan of Zanzibar to ban slavery.³⁵

1913 Split power in Oman between Imams ruling interior region (Nizwa), and Sultan ruling coastal region (Muscat).³⁶

1925 First geological survey to investigate possibility of oil.³⁷
1954 Campaign started by the Imam (with the help of Saudi Arabia) to rebel against the Sultan to become independent.\textsuperscript{38}

1955 Oman, Muscat and Nizwa become a single state.\textsuperscript{39}

1967 First production of oil in Oman.\textsuperscript{40}

1970 Start of the ‘Renaissance’, Sultan Qaboos overthrows his father in a non-violent coup. Modernization of the country starts,\textsuperscript{41} with the help of Jordanian, British and Iranian armies.\textsuperscript{42}

1982 Oman introduces an environment law, a first in the Arab Gulf\textsuperscript{43}

1986 First university opens in Oman. (Sultan Qaboos University).\textsuperscript{44}

H.M Sultan Qaboos’ passion for classical music results in the formation of a national orchestra.\textsuperscript{45}

1996 Omani population reaches two million.\textsuperscript{46}

2007 Cyclone Gonu – largest in 60 years with 49 deaths and 20,000 homeless.\textsuperscript{47}

2010 Cyclone Phet, 24 deaths.\textsuperscript{48}


\textsuperscript{41} Ibid.


\textsuperscript{45} Ibid.


\textsuperscript{47} National Center for Biotechnology Information, “Care or Cry: Three years from Cyclone Gonu. What have we learnt,” last modified July 25, 2010, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3191634/

\textsuperscript{48} Ibid.
2.2.2 Oman’s intensification

The intensification of Oman was always focused on providing for the needs and resources of as many villages as possible. After the Omani Renaissance in 1970, many projects took place to equip the country with all the services needed to revitalise the country. Primary schemes focused on providing basic infrastructure and needs, schools and healthcare, and the utilising of oil revenues to strengthen the economy. Plans were put in place for periods of five years to achieve long-term goals, starting in 1976. The ninth and current plan is from 2016 to 2020 and includes “road network, water, electricity, health and education” schemes throughout Oman. In terms of future developments, Oman Vision 2040 is a plan that operates to change the dependence on oil to other sources of income, as Oman holds fewer oil fields than neighbouring countries. The stability of the country and its diplomatic ties is producing an increase in tourists. Oman was ranked 22nd in the list of the world’s happiest countries, second in the Arab region. This factor gives a good indication of the reason for the growth in tourism.

The architecture remains traditional with an Omani aesthetic, as the Sultan is not fond of high rise buildings. No building in Oman is over 10 storeys high. From photographs and the site visit it is clear to see that glass clad buildings have only been built recently. The late modernisation of the country caused traditional Omani architecture to prevail for longer than in other states in the Gulf Cooperation Council. Building laws ensure that new buildings are to be “harmoniously integrated with its surroundings”. It is clear to see that the modern movement in Oman “respects a cultural identity inherited from the past”, while focusing on “adapted features of modernity that make it a player in the larger world.”

Traditionally, public buildings display the power of the ruler as well as wealth of the country and a variety of government buildings in Oman reflect that influence.

The overall progress of Oman from the era of isolation to the Renaissance is a successful example of growth and development. The background of the country provides a strong incentive for a cultural centre in the Arab Gulf with ambitions of educating the public. The fact that it has firmer laws on keeping new developments in line with the existing architecture demonstrates that people recognize the importance of preserving heritage.

50 Ibid.
54 Ibid.
55 Ibid.
57 Ibid.
Figure 45. The stages of school in Oman, Gold outline shows proposed educational stage.
2.3 Educational and the Civic spaces

1.1.1 Why a Cultural Centre

Historically civic buildings were constructed to convey the image of a government body and to represent a modern society, as seen in the Greek and Roman eras. Currently civic and cultural buildings express an image of progress and “technological sophistication and optimism about the future”. The foundation of the Omani Renaissance was established on providing services and educating the population. Learning can occur through different modes in a person’s life. Schools and universities have their own system that follows rules and a vision set by the provider. However, a type of space where locals can learn from each other and “carry out locally determined plans” is a place of many possibilities for different types of learning. The freedom of choice of learning and teaching is the focus.

Khasab lacks a convenient town centre, so a new cultural centre would add value by combining activities that are currently sprawled across the town into a place where activities can be centralised in one building. It would become a prominent building and consequently a focus in the centre of Khasab. The building would serve to educate the public through two approaches; the form and the building programme. Through its physical form the centre will use sustainable techniques that are integrated with the site context, thus demonstrating that this technology is beneficial for future developments. In social terms, the Khasab Cultural centre is anticipated to work as a town hall where the programme invites groups “spontaneously, to debate policy, and open the space around the building is (which) shaped to sustain people gathering and lingering”. It is anticipated that it will encourage people from different groups to host talks and, meetings, encourage learning and teach others skills that are both identifiable and new to the community. The activities will be informal in nature, which introduces an unorthodox mode of learning and socialising with the public. Important business and government meetings generally take place in the town’s few available auditorium facilities – for example the conference room in Khasab’s main hotel. The centre will become a better option for these meetings to take place in, so the information could be disclosed to the public within the centre, if that is important. A new cultural centre that is therefore beneficial and would serve numerous purposes for Khasab while generating the town centre.

2.3.2 Educational focus

Education was an important factor right after the Omani Renaissance was launched, because a range of skills was needed to revitalise the country. Before 1970 there were only three schools with boys only and an attendance of 900 students.\textsuperscript{61} Many schools were started or tutored by expats as the locals were short of skills at the time. Literacy levels were extremely low during the previous regime. The current system ensures that educational facilities are reachable throughout the country – even in the isolated villages and are available for both boys and girls. Schools are free for citizens from primary to high school. Though school is not currently compulsory the literacy rate today is at 94%.\textsuperscript{62} At the tertiary level there are 14 colleges and one state University in Oman (1986).\textsuperscript{63} Private universities exist in other populated cities in Oman. To further show the importance of education in the social structure, the ‘Basic Statute of State Decree no.101-96’ states:

\textquote{"Education is the fundamental basis for social progress sponsored by the State; which seeks to disseminate and expand the education; raise the cultural level; develop scientific thought; promote the spirit of research; respond to the needs of social and economic plans; and create a new generation, strong in its structure and morality and proud of its nation, its country, its heritage and willing to preserve its accomplishments."}\textsuperscript{64}

Education does not necessarily happen through formal arrangements such as schools, the process can take place in another form. Education spaces can be also thought of as outside the school system, as spaces where people gather to show off their skills and learn from each other, similar to a workshop approach. An informal type of learning space, as mentioned in ‘Towards creative learning spaces’, is where the “conversations between the tutor and student explores the wider processes through which a community of ‘knowers’ come to inculcate not just the knowledge, but also the attitudes and culture of their community”.\textsuperscript{65}

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{62} Knoema, “Oman – Literacy – Adult (15+) literacy rate,” accessed September 14, 2016, https://knoema.com/atlas/Oman/topics/Education/Literacy/Adult-literacy-rate
\end{itemize}
\end{footnotesize}
Informal education in the broad sense means educating through social or community focused spaces where the learning is unrestricted. Unlike schools that have a specific curriculum of subjects to learn and exams to pass, a workshop type approach would provide a relaxed type of learning for the participants where classes are by choice and open to different groups and ages. The current structure of education is based on Figure - . Within the context of a modernising approach to education, this project examines a model that proposes to integrate civic functions with an education facility to be located prominently in Khasab, a town north of Oman.

2.2.3 Layout

The layout of education spaces varies with each cultural centre; some depend on core values and others on the requirements of space alone. Floor plans of formal and informal learning spaces have been debated when deciding the best space to learn in. The current global trend is concentrated on flexibility and open plan spaces for education. However, this is typically only thought of because it is the opposite of a formal space. Flexibility is not always a proven working scheme unless it is thoughtful, as each space still has the requirements to make it work. Instead of focusing on opposites, it is smarter to design a space that encourages specific behaviour. For a design to work well, Jos Boys proposes that it is not enough to simply plan an open area for people to mix and meet in, since it does not guarantee the actions of people.66 In another example, an experiment shows that a stage at the front or the formal delivery of a speech from the front almost reduces “collaborative and small-group” activities.67 In Bernard Tschumi’s design for Le Fresnoy National Studio for the Contemporary Arts in France, Tschumi uses a strategy of “centring in relationships”68 and it “has gaps of non-defined zones-in which formalised activities can take place”.69 The same building deals with the programme by having rooms that are considered a service-usage space. Each room provides a set of services for any classroom typology. Each class is scheduled in the required room for the lesson, which can be theatre, classroom, a lab and so on without being specific to one field of knowledge.70 This enables a different type of flexibility where a class can be taught anywhere, rather than having a specific building. This becomes a different type of informal approach to learning.

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67 Ibid., 16.
68 Ibid., 27.
69 Ibid., 29.
70 Ibid., 30.
Figure 46. Sunken palm grove, Oman

Figure 47. Network of Veins, Human Body

Figure 48. Flow from dams northbound to sea level
2.2.4 Water Philosophy

The informality of educating the public on sustainable design can be taken a step further by engaging the public with the building through the treatment of water. This is rooted to Khasab’s context through the flow of floods, dams and the connection to the sea. A worldview and local perspectives on this topic will present guidelines on the water design consideration in the building. In the Qur’an, a verse states “...and from water we made every living thing” (21.30) emphasizing its importance to the very existence of life forms. It is also associated with the idea of purity and water’s creation of gardens in paradise and on Earth as places of sanctuary. Another verse describes the creation of trees as food and the garden’s aesthetic qualities for human enjoyment. The Omani gardens are a type of modest sanctuary, very much like its houses. Its typical components are a palm grove divided by water channels, sometimes the gardens are sunken slightly below ground level. Though they are only made possible with a certain amount of rainfall, they provide significant human comfort in the arid desert. Water is thus regarded by Islam “as a gift from God” with rights for humans and animals to that supply. Qur’anic verses (including those not stated in this research) could be interpreted to express the human being’s reliance on and rootedness to the natural elements.

In the essay ‘Further ideas towards Water Ethic’ Adrian C. Armstrong describes water as having four aspects; “a source of life, a land-forming element, a habitat and mover of materials”. These descriptions identify water’s physical functions in order to make practical decisions regarding water use. The first function is apparent, while the second ‘land-forming’ function is specifically of interest here as it relates to Khasab’s topographical geography. For millions of years water has shaped and continues to shape the mountain ranges, it creates wadis and flows freely along low ground to the sea. The third function, ‘habitat of water’, refers to bodies of water such as rivers, wetlands and seas. This function identifies water as a fundamental element in an environment. The fourth function refers to the quality of water.

The movements of water is also essential to understanding its functions. Rainfall through wadis naturally creates channels of water that run through mountains down to smaller streams of water, comparable to the flow of blood through a network of veins in relation to the human body. Charles Moore’s writings give character and symbolism to the movements of water in all its phases from the gush of rivers to still water bodies. When describing channelling of water, Moore recounts how ancient cities grew alongside riversides and how the flow of rivers created plans for towns.

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73 Ibid., 139.
Figure 49. Water under rock

Figure 50. Water flowing through rock wadi

Figure 51. Waterfall created by rain

Figure 52. Waterfall created by flash flooding

Figure 53. Water with water basin
In Khasab, traditional settlements were scattered to form a path that leads water away to sea, while capturing it at the end to create palm groves. The concept of using water in the centre is to bring to light the importance of using sustainable techniques in a building. The cultural centre will utilise the movements and phases of water thereby stimulating public awareness. In terms of technology, water can be saved, reused or put back into the water system, supporting the sustainable Islamic principles. In terms of the social aspect, it will create a comfortable environment that is pleasing to the eye, as well as a point of interest. The management of water in the building will tell a narrative of water’s journey from its beginning stage of pure water during rainfall, down to its treatment and disposal or reuse. This becomes a type of informal education where an element of religious and contextual importance is used dynamically to promote sustainable values.
Figure 54. Khasab Fort
3.0
Context Analysis
3.1 Khasab
3.2 Current lifestyle
3.1 Khasab

3.1.1 Background

The choice of this small town for the project comes from its social and political location between Oman and the other countries along the Gulf coast. Its heritage and context is similar to that of the Trucial States, so the proposed project serve as a model for other cities in the Arab Gulf. The town is still under cultural influence in terms of lifestyle and the development of a new project will respond to and create an interesting relationship between people, the environment and modern techniques. The existing issues are:

- Low population, some leaving village for towns with more jobs and opportunities.
- Not enough space to build a large network of buildings for organisations and groups.
- Hotels include conference and meeting spaces to take care of important business meetings.
- Cultural centres and other facilities exist, however locals are asking for an expansion of available facilities.
- Programmes are scattered across Khasab; there is no actual centre to the town other than the closely grouped commercial amenities.
- Climatic challenges of the arid climate.

Khasab is one of many villages located in the northern tip of the Arabian Peninsula. It is part of an exclave called the Musandam Peninsula. The actual boundaries of Khasab extend inland farther than the developed land to include smaller settlements inland, where the sea and rugged mountains separate villages from each other and the outside world. Villages throughout the Musandam peninsula were governed by tribal settlements and were semi-nomadic, as they only moved to particular areas with the change of seasons.

*Figure 55. Map of Musandam Peninsula*

*Figure 56. Map of Khasab in relationship to Musandam (next page)*
During the foundation of the UAE in 1971, there were negotiations over which country the Musandam villages should belong to. Oman’s power was enough to gain influence in the negotiations for the Musandam Peninsula. In other areas, villagers were asked who they wanted to pledge their alliance to and they chose their alliance according to their tribal leaders. The inhabitants were commonly referred to as the ‘Heads of Mountains’, while now each village is defined by its own name.\footnote{Emirates Natural History Group, “The Southern Russ al Jibal – An Introduction to its People and Natural History,” accessed August 8, 2016, http://www.enhg.org/bulletin/b25/25_13.htm}
3.1.1 Lifestyle

3.1.1.1 Existing Rituals

The influence of Islam is evident in the everyday life of citizens, from the architecture, to daily rituals. People’s rituals are mostly taken from Islamic celebrations. Beyond that, the notable celebrations are marches. During a wedding, the groom is accompanied by his family and neighbours in a procession towards his future household. Another ritual is in the form of a sword fight, where men take part in a play sword fight during a celebration. These celebrations are usually accommodated under a temporary tent with mats, coffee and palm dates are served. Dancing and speeches are relevant to the event.

3.1.1.2 Government and Administration

In the typical Arab setting the ruling system in villages was split up between heads of tribes. Each tribe has a leader (a role that is usually inherited) to represent them in group meetings where the leaders of each clan decided on topics (usually chosen by those who have wealth and influence over others). Currently the absolute monarch rules over everyone, with a governor representing main villages. The tribal influence is still apparent today and the inhabitants of Musandam are very proud of their background. Belonging to a tribe gives the people a sense of identity which is strongly tied to the land. Prior to modernisation it controlled “rights of access to owned and used resources and determines rights to develop resources within the ‘tribal’ area”\(^\text{76}\). Marriage and inheritance provided cooperation between tribes giving families wider opportunities in life. For instance, everyone was known to have knowledge on making rope, carving wood, fishing and other relevant activities through community learning. The larger the family network, the bigger the possibility of them attaining more knowledge and their ability to move between the mountains and the coast.


Figure 57. Map of Khasab town
Figure 58. Women in cultural attire

Figure 59. Man in cultural attire
3.1.1.3 People

Many petroglyphs have been found in the Musandam Peninsula that date to the Iron and Bronze ages, however the Iron and Bronze ages have no apparent influence on the people living there today.\textsuperscript{77} The main Arab tribe that dominates the area today are the ‘Shihuh’ tribe. This tribe was known to move from the upper mountains to the sea front between seasons to survive, making them semi-nomadic.\textsuperscript{78} The current population is different in the sense that they do not move according to the seasons anymore. With technology they are able to live in one permanent house. Many people now work in the government sector in Khasab or commute across the border to work.\textsuperscript{79} Foreign labourers from other Arab countries and east Asia take work in Khasab and end up living there for a while.

\textsuperscript{78} Ancient Origins, “Are the Reclusive Shihuh People of Musandam the Original Arabians,” last modified October 31, 2015, http://www.ancient-origins.net/history-ancient-traditions/are-reclusive-shihuh-people-musandam-original-arabians-004399
Figure 60. Figure showing typical palm grove farm layout

Figure 61. Indicative diagram of water flow from mountain tops out to sea
3.1.2 Environment

3.1.2.1 Resources

People moved around the Musandam Peninsula in search of water wells or places of possible rainwater collection, which turned water into a dominant feature in the planning of villages. The sea provided a mode of transport and relief from the interior rocky landscape. The contrast between the inland with its rocks, mountains and rainwater give distinctiveness to the town, along with the difference in elevation. The following is a short review on the technical aspects of water available in Khasab.

Judging by the size and number of settlements, Khasab contains one of the larger water supplies available throughout the northern area of the Musandam peninsula. The town historically relied on wells and birkat for its water supply throughout the year. Wells are scattered along the coastal zone and get recharged when rainfalls and flows to the ocean. Birkat were used more often on higher ground. Natural water channels are difficult to construct on the deep slopes of the Khasab mountains, so the falaj systems that have been developed in other parts of Oman are not found in Khasab. Birkat were dug underground and plastered with ground clay to stop water seeping through the edges, while some birkat were found in natural rock structures though they had less water storage capacity. In the past, they were the sole water resources and met all demands including human use, livestock, and agriculture. Water was distributed among families first, then on to neighbours if there was any excess, then on to the village if required. This procedure ensured survival of close relatives before strangers. Currently birkat are only used for livestock, and limited amounts are used for the agricultural sector. A total of 967 birkas ranging in sizes and uses were found in Musandam in various settlements in 2001.

A total of 967 birkas ranging in sizes and uses were found in Musandam in various settlements in 2001.

Three groundwater recharge dams were constructed in 1986 with catchment areas. These are the Khasab Dam = 265km² (23m high), the Shariya Dam = 21km² (9m high), and the Mawa Dam = 19km² (8m high). According to the Oman’s ministry website, these dams store water for a maximum of 14 days, then it is gradually discharged into underground channels. The purpose is therefore to prevent flooding and “enhance ground water aquifers”. The high and exposed mountains on either side of Khasab give the possibility of producing “one of the highest flood peaks in the world”. “Water supplies in Musandam are drawn almost entirely from wells and boreholes in coastal alluvium.”

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81 Ibid.
82 Ibid.
83 Ibid.
84 Ibid.
Figure 62. Figure showing typical birkat plan

Figure 63. Figure showing typical birkat section

Figure 64. Graph showing average yearly rainfall

Figure 65. Graph showing average yearly temperature in Khasab

Figure 66. Graph showing average yearly high/low temperatures in Khasab

Figure 67. Graph showing average yearly rainfall

Figure 68. Graph showing predominant wind
Past water supplies limited the number of agricultural plantations. With the current stability and availability of water an increase in palm groves is evident. Saline intrusion threatens some of the pumps around Musandam, although Khasab is at less risk at it is 5km away from the coast.

Overall, the water supply in Oman is diminishing due to the demand from the agricultural sector. The country’s use of water goes beyond the “recharge of groundwater”. Annual water deficits are being dealt with by the Oman Power and Water Procurement Co (OPWP), in Khasab they are building a desalination plant that will be completed by 2019, with an expected production volume of 16000m$^3$ per day.

Flooding is a regular occurrence in Khasab during the rainfall season. Large amounts of rainfall (within hourly periods) is the norm during winter, with several occasions of hail and some years there are records of snow in the mountaintops. Previous village planning had corridors between houses that provided a path for the rainfall to flow out to the sea and the buildings were raised. However, with the current building standards many buildings are not raised and roads are paved with asphalt that slopes down into homes in some parts of the town. Efforts at finding solutions for flooding started with the construction of dams. Recent solutions include building a small trench that follows house fences so that any rain can flow into them and away from households. The threat to buildings posed by rainfall depends on the condition of the building, building ground levels, and the intensity of rainfall and wind.

3.1.2.2 Climate

The climate in this town is hot for most of the year, reaching temperatures in the ranges in the 40°C zone. Khasab can be very humid because of its proximity to the sea. From November to March the village weather cools down and rainfall increases, providing the ability for water aquifers to recharge and allowing higher tourism numbers. The average rainfall is approximately 180mm for the Musandam region.
Figure 69. Household typologies in relationship to landscape

Bait al Qufi

Typical household

Arish dwelling
3.1.3 Architecture - Domestic

Oman’s historical and traditional buildings consist of fortified castles, towers and semi-fortified domestic compounds. Khasab’s architecture and the surrounding villages had to rely on few materials, which were modestly sufficient for their modest lifestyle. Households, although placed close to each other, were separated by farms or walkways. The villages were placed in clusters in Musandam, as though each village represented a certain tribe (evident through the distance between clusters). People’s connection to the sea is obvious as villages are assembled immediately behind the shoreline. Most dwellings in these types of villages consisted of houses.

Figure 70. Figure showing typical village arrangement

Figure 71. Figure showing typical plan
3.1.3.1 Arish Summer house

An arish house is a ‘hut’ type dwelling for enduring the summer. Arish is a palm frond, which was also used to create many everyday object for the hut. These dwellings were built by people who stayed here temporarily; they were predominantly villagers who flocked to Khasab in the summer months for cooler air. Others were mountain dwellers who left their winter houses locked and move into the Arish house to make use of the sea breezes. The structure of these houses is made of palm fronds, timber and stone. The stone pillars stand as permanent structures, with timber beams made of thicker tree branches. The structure is raised about one metre or higher above ground, most likely to avoid the tides and to allow air to flow beneath the floor and avoid flooding. Arish is a secondary structure and an infill that is upgraded with each summer visit, as palm fronds are readily available and they are easier to maintain than other materials. A latticework of palm fronds allow light to enter. The main structure, pillars, would stay intact over the seasons and only the skin (arish) would be revamped if required. The structures are high enough to keep animals out.

Figure 72. Figure showing arrangement of houses in context

Figure 73. Figure showing arrangement of arish houses in context
3.1.3.2 Typical house

It is unclear whether these were seasonal, or were built in a period closer to the Omani Renaissance. They are small rectangular or cube shaped households closer to a modern understanding of a household unit. The structure is made of stacked rock and generally had a plastered finish, with minor decoration in the form of window screens. These were placed close to each other, typically with no walls surrounding the dwelling.
Figure 81. Figure showing typical house in mountain setting.

Figure 82. Figure showing household layouts in village settlements.

Figure 83. Figure showing path between households.
3.1.3.3 Bait-AlQufl

Stone houses were used by mountain dwellers. They were typically called Bait-al-qufl or house of lock, as they were used to store household, possessions and jars of supplies during the seasonal migration. It is unclear if they were only used for storage with the family house adjacent, or whether there was mixed use. Almost none of the observed dwellings include windows, only an entry door. The structure of these buildings was very heavy, as people made use of the nearby stone from the mountain range. Some was pre-cut, while other stones were arranged to suit the walls. The roof was made from a thick mix of timber beams and gravel/mud thatch. Timber is somewhat scarce in the region so many of the beams are short, though thick. The walls and roof were thick enough to block out the sunlight and keep the inside cool, or warm in winter. The building is nearly half underground, adding to the protection against the heat. A lot of these are built in close proximity to the mountain edges or on the mountain sides, indicating that they may have provided some level of protection. Historical evidence shows that the building materials were left raw with no finish. The stone houses would have provided the warmth needed during winter nights.

Figure 84. Figure showing ‘lock’ house
Figure 85. Figure showing lock house 3D section

Figure 86. Figure showing lock house section
3.1.4 Public Buildings

Most of the buildings photographed or noted were residential, which suited the modest village lifestyle. The most prominent public buildings are defence buildings (forts and watchtowers), and mosques and markets.

3.1.4.1 Khasab Fort

Originally built by the Portuguese, this fort stands today at the shoreline border of Khasab. The existing building is heavily renovated, but it is based on the original layout with an Omani taste. At the time it was built, this fort would have been considered an upper-class authoritarian defence structure, before government buildings existed. Now turned into a museum, the attention to the details of the design and the use of ornaments gives evidence as to what design and symbolism were evident beyond the practical lifestyle.

Figure 87. Figure showing fort plan

Figure 88. Figure showing fort facade

Figure 89. Figure showing fort interior
Figure 88. Figure showing fort facade

Figure 89. Figure showing fort interior

Figure 90. Figure showing fort perspective
3.1.4.2 Mosques

Mosques in the past were simple structures with little or no decoration. Their style and use of materials were not different to that of other dwellings. Very few historical mosques exist in Khasab today as many of them are run down. Floor plans are rectangular with a mihrab that faces the Qibla (towards Mecca). The example shown in figure- shows a historic mosque with a larger space. The plastered finish, now wearing off, indicates that it was used more often. Figure 91 indicates an earlier example of a mosque, probably higher in the mountains because of the use of large stones and is marked by the mihrab with a rectangular top. Examples here show little or no decoration, and no minaret (tower).
Figure 92. Figure of Mosque in Buhko, Musandam
3.1.4.3 Markets/ Social scene

Little historical evidence is known about market places in Musandam, however, the nature of the lifestyle meant that there was little trade in the region. Trade seems to have been more popular around other areas of Musandam (outside of Khasab) as people in this bay were very private. It is also likely that any market type structures were temporary, or restricted to pillars and tables. Examples are drawn from surrounding towns as an example. Other structures were made for people to gather in; they looked temporary but could have been permanent. An example below shows a man teaching children to read the Qur’an. Both structures make use of pillars as the permanent structure, with long wooden beams that form square plans, and palm fronds as the secondary structure. The difference that reveals the wealth or population numbers is usually in the materials. The figure - in Ibri (northwest Oman) shows that the market is popular as it uses of heavier, plastered pillars and doors for shops to lock goods inside.

Chatting or get-togethers were common just outside the household, some went further and added seats beside their doors. Going to the sea for refreshment, fishing, swimming, or walking on the mountainside to search for honey, timber, stone or to feed goats were daily activities which consequently made people closer to the natural environment. The simplicity in lifestyle has a somewhat pleasant. It shows that even the wealthy who visited adapted to the lifestyle during their visit. Permanent public buildings for social activity were not common in Khasab prior to modernisation.
Figure 93. Figure showing women seated outside dwelling for talks, hangouts

Figure 94. Figure showing Sultan Qaboos seated with expats in modest setting in Khasab

Figure 95. Figure showing man teaching children to read the Qur’an

Figure 96. Figure showing market structure—Ibri, Southern Oman

Figure 97. Figure showing children playing by the beach

Figure 98. Figure showing men working by bateel crafts

Figure 99. Figure sea near households, providing water activity
3.1.5 Symbolism in Culture

Musandam has almost no written records until the era of modernisation. Much of the history is evident in the architecture, through art or through people’s stories. Illiteracy was common among nomads and semi-nomads. Though the buildings are modest, symbolism is found in in details such as ventilation shafts or on everyday objects.

The use of written records therefore represents an advancement in society.

- Culture defines their experience through the use of symbols.
3.1.6 Analysis Outcomes – Past Conditions

- Few resources resulted in a modest lifestyle and modest building typologies.
- The architecture responds to the climatic aspects of Khasab. Human levels of comfort are attributed to different parts of the village.
- Sea-front buildings utilised cool air flow, mountain buildings offered security from flooding on flat ground during rainfall, and used stone construction for thermal comfort.
- Khasab gained popularity over surrounding villages generally because of the larger greater of water – wells and overflows.
- Access to Khasab was by sea; the coastline therefore established an important connection to the outside world.
- Villages were laid out in compact fashion with moderate houses with narrow ‘corridors’ for breeze and shade.
- Arish houses were laid out mainly facing the coastline- in plan view the shape of a crescent.
- Mountain houses were more spacious in layout and placed closer to mountain edges and adjacent to farmland or water basins (if present).
- Lifestyle and activities were closely attached to what (work) opportunities were available.

*Figure 108. Arish house with openings extruded*
Figure 109. Typical household with facade of openings extruded

Figure 110. Activities in the past
3.2 Current lifestyle

3.2.1 Current developments Musandam

No exact details or plans are given on future plans in Musandam other than the project typology, so the focus on this section will be on existing current buildings and proposals for ‘sustainable’ developments in Muscat to understand the type of proposals.

3.2.1.1 Khasab Atana Hotel – Khasab, Musandam, Oman

Figure 111. Atana Hotel site map

Figure 112. Trench - provision for flash floods

Figure 113. Atana Hotel perspective

Figure 114. Typical household
3.2.1.2 Other Buildings in Khasab

Figure 115. Typical household
Figure 116. Khasab’s main mosque
Figure 117. Old house to be renovated
Figure 118. Commercial zone
Figure 119. Apartment building
Figure 120. Government building
Figure 121. Typical park
3.2.2 Proposed developments - Generic Oman

3.2.2.1 German University of Technology Oman, Halban, Muscat – 2012 – Hoehler-Alsalmy architects

An example of an environmentally friendly building in Oman. This development is for a University complex in the outer Muscat region. The development includes a conference center, student housing and the University block. The architects incorporated an AC system that redirects cool air to an inner courtyard (surrounded by classes), and is chilled a further 5 degrees by a system of sails. The method of greywater purified for vegetation irrigation is utilized throughout the scheme. The building is made to be solar ready so it can plug in as newer solar technology arrives to Oman.

Figure 122. Conference hall

Figure 123. Courtyard with water feature

Figure 124. Exterior perspective of University block

Figure 125. Interior perspective with sculpture

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92 Ibid.
93 Ibid.
Proposed Madinat Irfan (reference Aurel von Richthofen’s research model)

This is an example of a new development in Muscat. Aurel Von Richthofen’s (Architect & researcher) housing proposal for a new housing lot. Housing typology is based on traditional techniques with passive design principles. Also includes new technology such as solar on rooftops and the inclusion of lattice screens as a cover.
3.2.3 Analysis Outcomes – Existing Conditions

- Inclusion of the air conditioner drastically changed the form, no need for actual openings. Openings shown are all covered in glass and rarely opened.
- So far, floor plans are similar to heritage buildings, only the buildings are much larger (especially housing).
- More decoration but mostly in the form of physical elements (sculptural) rather than 2D elements. For example, domes, archs, with abstracted 2D elements.
- Khasab mountains are admired by locals as pleasing views, so windows have the option of showing a picturesque part of the outside world.
- Majority of buildings are low in height so views are unobstructed.
- New buildings mostly resemble the past in terms of mass.
- Building along the coast are still popular.
- Heritage sustained is a physical image, observed in mass, minimal openings and the ‘plaster’ colour palettes.
- Water is readily available for any building. It is only used in bathroom services, it does not feature inside or outside the home, other than the few hotels that contain swimming pools and fountains.
- Use of air-conditioners (from their very first use) blocked all exterior openings. Any openings do not open (except for decorative purposes), or to let sunlight in (also usually blocked).
- Air conditioners rely on heavy use of electric or diesel energy.
- Though Oman has supply now, dependency is increasing and could cause an earlier end to supply.
- Gas shortages and electricity cuts are not uncommon.
- Town is isolated so new energy infrastructure needs to rely on creating its own, disconnected from larger city supplies.
- Buildings are usually blocked off from the outside environment. There are two major zones, indoors and outdoors. The indoors is cool and relaxed, opposite to the outside heat and humid air.
- Cultural and historic relevance is somewhat lost in the new form of architecture as it was deeply tied to climatic aspects.
- Preferences are heading towards glass-box typologies.
  ✓ Air conditioners provide fresh, cool air against the arid climate.
  ✓ Air conditioners allow for the building of larger complexes (historically air could not flow through).
  ✓ Increased flexibility and privacy of indoor space.
  ✓ Present infrastructure provides many opportunities for the population and
attracts new people or locals who are willing to leave in pursuit of more opportunities.

- Construction materials consist of concrete, steel, stucco, paint, and reflective glass.

Figure 127. Figure showing typical modern household with facade extruded (shows opening)
Figure 128.  Traditional development in comparison with modern - Qatar University block
4.0 Precedents

4.1 Principles
4.2 Cultural Centres
4.3 Involving water
4.4 Involving technology
4.5 Involving materials
4.1 Principles

The Cultural Centre will revolve around three main principles which correlate to spaces. The first is the meeting space that allows public debate to take place and encourages the public to engage in discussion. The second principle is the library which provides an access to information. The third principle is the informal part of the complex which provides more freedom for users, which is the open rooms that allow mixed functions. Precedents are reviewed to gain an insight into the layout of these spaces.

4.1.1 Meeting space

4.1.1.1 Sitting Rooms

The following examples show floor plans of the arrangement of sitting rooms in the Gulf. These were mostly designed for men to use and the rooms were an important part of the social structure as they were places where heads of tribes met to discuss, or part take in ceremonial agreements and celebrations, or for male visitors in general. These examples are from other regions of Oman.

Most sitting areas are placed close to the entry; sometimes a separate entry is provided for men. The path then follows into a hall then into a courtyard, archway, hall or the entry is immediately after the entry.

4.1.2 Mixed use rooms

The idea of using separate functions for every room is evident in many building types. In the traditional Arab setting – especially in domestic architecture – rooms are usually designed with no specific function. They are simple square rooms that can be used for any purpose. Only services areas such as the kitchen or washrooms are given specific requirements, and if the sitting room if one is included.

‘The Mediatheque’ building in Orleans, France is a great example of the multi-function room space. This building is a learning centre “where individuals seek the means to increase their knowledge”. The layout translates this into design terms by assembling disciplines in phases where one leads to the next. By ordering disciplines in order of “intellectual progression” the user becomes motivated to proceed through the building. Spaces are regarded as part of a whole and, are characterized by “symmetry of plan, orientation and unity of colour”. Each room is there for a reason that cannot be extracted without impairing the whole.

Figure 137. Majlis in Khasab Fort

95 Ibid.
Another example where closed to open space takes an intriguing approach is noticeable in the Mont de Marsan Mediatheque, France. A free open space is placed at the centre of the building and made prominent by its irregular shape and transparency. A semi-public space is placed around this centre with functions to suit. Private spaces are laid out around the outside edge of the semi-public space, forms a closure to the exterior space.
4.1.3 Library Space – Surry Hills Library, Sydney – 2009

This library is set in a diverse range of conditions. It is located among residential and commercial complexes of different sizes. User groups come from a range of different backgrounds and ages. The community expressed their desire for a space that combined a library with communal activities shared by everyone while still characterising their values. Limited space posed limitations on the size of the library.

The result shows a different façade treatment for each side of the library reflecting these requirements. The transparent parts allow an open viewing area while other parts use sustainable techniques to treat climate conditions. The limited space caused the architects to use the ground and basement floors as library space, level one as a community centre, and level two as a childcare centre.96

The outdoor courtyard space becomes an extension of the library space with the building forming a U shape around it that creates an indoor atrium.

Mechanical louvres are used to control sunlight entry. The children’s outdoor area at roof level is shaded by the use of photovoltaic panels that also provide energy for the building.

The southern façade is made up of a double glass curtain wall system that tapers to “draw in clean outside air and passively cool it”97 from ground level. Plants are effectively incorporated in this system at ground level to “bio-filter pollutants”.98 The eastern façade is fully covered by louvres. The northern side is connected to other buildings at lower levels with windows at the upper levels. The western façade is a mixture of louvres, windows and cladding where needed. The services of the building are controlled through a BMS system that regulates the automated mechanical equipment as well as having control over ventilation and light switches.

Rainwater is collected at roof level as well as from the outside courtyard and recycled throughout the building for plumbing and the irrigation of outdoor and indoor plants. A geothermal heat exchanger is installed in the underground soil to provide “passive tempering of outside air...by transferring air from earth to the building”. The air is tempered through water pipes that help take in hot or cold air into the building through ceiling space down into rooms. Relief air is naturally extracted through the double façade and staircase space.

The building also makes use of a regular ‘night flush’ or night purge which keeps all windows and doors open to release the daytime’s warm air intake. In other cases thenight purge can be useful to take in cool air at night, when the summer air is too hot in the day.100

97 Ibid.
98 Ibid.
99 Ibid.
4.1.4 Analysis of why chosen;

The precedents show an example of how their functions successfully work within a learning space. The sitting room is relevant to the socially progressive aspect of the centre. It will take the form of a meeting space where people are able to hold debates, discuss public concerns or make announcements. The library makes up the knowledge part of progress and, is a facility where technology and theory is backed up by evidence. The library can be interpreted as an open public commodity. The open space provides a sense of informality that enables a choice and individuality in the use of the room, re-affirming an informal yet appropriate approach to learning.

4.2 Cultural Centres

4.2.1 List of Cultural Centres

An exercise was carried out to analyse cultural centres from the top ten countries on the SPI index to learn about layout, form, material or other unique qualities.
Sámi Cultural Centre Sajos, Inari, Finland – 2012 SPI = 90.09

Cultural Centre to represent the only indigenous group in the European Union – Sámi culture. The centre houses cultural activities for this group to develop their skills and maintain cultural activities along with a self-governed parliament.

NK’Mip Desert Cultural Centre, Osoyoos, British Columbia, Canada SPI = 89.49

This centre is an award-winning building for its eco-friendly design methods and its educational functions. The centre is located in an endangered desert environment with locals of indigenous background – the Syilx of the Okanagan Nation.

People’s Meeting Dome, Allinge, Denmark – 2014 SPI = 89.39

This dome was planned as a temporary structure on other sites, and was then transported for use as a permanent community and events centre. It acts as a creative space for the community to gather.

Uluru-Kata Tjuta Aboriginal Culture Centre, Uluru-Kata Tjuta National Park, Australia - 1995 SPI = 89.13

This centre is set in a desert landscape for locals of aboriginal Aṉangu background. The centre is for visitors to stop and gain more knowledge about the National Park, as well as to for the local’s arts and crafts.
Figure 148. Parliament

Figure 149. Inspiration for building plan

Figure 150. Sámi cultural centre, floor plan

Figure 151. Theatre

Figure 152. NK’Mip desert centre, rammed wall

Figure 153. NK’Mip desert centre, floor plan

Figure 154. Interior

Figure 155. Meeting dome, seating space

Figure 156. Meeting dome, floor plan

Figure 157. Exhibition

Figure 158. Uluru-Kata Tjuta centre, Aboriginal belief as inspiration for floor plan

Figure 159. Uluru-Kata Tjuta centre, floor plan
Pavilion of Reflection, Zurich, Switzerland – 2016  
SPI = 88.87

Fully timber framed structure designed and built by 32 students as a project for Manifesta 11 – a “European biennial of Contemporary Art”.¹ It serves as a meeting point for the public and invites them to walk in to explore this temporary urban island.

Kulturehuset, Stockholm, Sweden – 1974 with upgrades in subsequent years  
SPI = 88.80

Kulturhuset is a well-known centre situated in a large public square and was built to encourage cultural and social activities for many different groups. It holds events that attract a significant number of visitors annually, including international visitors.

Strandgata 32, Hammerfest, Norway – 2009  
SPI = 88.70

This centre is one of the introductory steps to help reinforce vibrant cultural activity in Hammerfest, the northern-most city in the world. Its link to the sea is vital and town planning requires all public areas to be connected to the sea.

Rozet Cultural Centre, Arnhem, Netherlands – 2013  
SPI = 88.65

Situated on a busy public network surrounded by historical buildings that shape the area. The centre is part of a larger urban plan to connect the knowledge centre with the arts centre.

¹ It serves as a meeting point for the public and invites them to walk in to explore this temporary urban island.
The Barbican, London, United Kingdom – 2014 SPI = 88.58

The Barbican is one of the largest arts and culture city centres in Europe, and is also one of London’s most prominent examples of Brutalist architecture. The centre was planned as a landmark and part of a “Utopian vision to transform London.”

HOF Cultural and Conference Centre, Akureyri Island, Iceland – 2010 SPI = 88.45

An arts centre designed and built for a community on Akureyri Island. The project is one of three strategic projects for this town to encourage tourism. The location of the building makes it dominant as it can be seen from the ships arriving.
4.2.2 Analysis

4.2.2.1 Water Spaces

Figure 184. HOF cultural centre

Figure 185. The Barbican, hidden garden

Figure 186. Rozet centre library

Figure 189. NK'Mip desert centre

Figure 188. The Barbican

Figure 190. Pavilion, people’s interaction with water

Figure 187. The Barbican

4.2.2.2 Library Spaces

Figure 186. Rozet centre library

Figure 191. Sami centre library

Figure 188. The Barbican library
Common Activities: Workshops, auditoriums, foyer, eating area, café, restaurant, library, heritage centre, arts centre, community college, theatre, amphi-theatre, exhibitions, reception, meetings, conferences, offices, music studio, washrooms, pedestrian path, stage, entry, debates, outdoor courtyard, outdoor loading bay, kitchen, outdoor cinema, public forum, swimming pool, outdoor entry, classrooms, circulation space, media coverage room, archives, seating area, ethnic art space, gallery, souvenir shop, activity signage, terrace, main sculpture (symbol), recycling, administration, AV control room.
4.2.2.2 Open areas and mixed functions

Figure 195. HOF centre, rooms overlook pedestrian street

Figure 196. Strandgata 32, foyer, walkway and activity space

Figure 197. NK’Mip centre, outdoor theatre and open space for exhibition or talks

Figure 198. Uluru-Kata Tjata, columns appear as trees holding up roof, mezzanine overlooks walking area

Figure 199. Rozet centre, mix of pedestrian path alongside activities invites people in, historical references of Rozet continuous throughout building

Figure 200. Kulturehuset, outdoor square lies in pedestrian path and invites people in
Figure 201. Pavilion, steps down to water creates theatre, outdoor cinema adds to vibrant atmosphere

Figure 202. The Barbican, outdoor space interlinked with water activities
Figure 203. Alhambra water fountain leading to court of lions

Figure 204. Alhambra, sunlight reflecting water ripples to building, and sound of water as soothing gesture for occupants

Figure 205. Alhambra, fountains diagram in plan and section

Figure 206. Alhambra, basin in plan
The next couple of paragraphs will relate to studies from the cultural centres and other precedents.

4.3 Involving Water

4.3.1 Conservation and Production

NK’Mip: The stresses on high water requirements are decreased by 40% in the building by using water saving components in the buildings, such as “low flow faucets, waterless urinals and dual flush toilets”.¹⁰¹

Rozet centre: The centre utilises the roof space as a water collection pond and a vegetation zone. Water collected is used as part of the air-conditioning of the building.

Atmospheric Water Generator: Mechanical equipment that uses electricity and air to extract water from air to convert to potable water.¹⁰² This system is useful for off-grid locations and environments where there is humidity and enough sunlight. It operates similarly to a normal dehumidifier except that it makes water clear enough to drink. Solar panels are used as a sustainable method to generate electricity in order to operate and recharge the device. The amount of production depends on the size of the machine, but to get an idea the Aldelano Solar WaterMaker models can produce up to 3785 litres of water a day.¹⁰³

4.3.2 Features

The Alhambra palace uses spaces that lead to one another linked by the flow of water. A shallow channel is provided for this, so that when there is no water it doesn’t become a waste of space.

Figure 209. Doha University perspective

Figure 210. Doha University, 3D above. Elevation and plan below

Figure 211. Doha University, site plan
Qatar University, Qatar

- A module of blocks of buildings compressed together to form a focused centre with sprawling outer functions.
- The modules make up small parts of a whole, suggesting that each piece is important to complete the plan.
- Forms utilise wind towers as a traditional ventilation method and the extended roof shape for the indirect entry of light, used throughout the building.
- Use of public to private zones, in line with traditional village style layouts.

Figure 212. Sharjah University, site plan

Figure 213. Sharjah University, elevation above, plan below

Figure 214. Sharjah University aerial perspective
4.4 Involving Technology

4.4.1 Sharjah University and Qatar University

A simple comparison between two universities illustrates the difference between forms that harmonise with the Arabian Gulf context and forms that suit western standards.

Sharjah University, United Arab Emirates
- Designed by Francis Gambert, opened in 1997.
- Classical western elements of symmetry and regularity in plan.
- Heavy ornamental work symbolic of general Islamic design makes up the elaborate features on elevations. Includes pointed arches, latticework, friezes, and cornices.
- Plan allows for more vehicle space in comparison to Qatar University.
- Complete artificial lighting and cooling technology.
- Public to private zones depend on vehicle traffic.

4.4.2 Passive building techniques

- Figure 217. Protective cover
- Figure 218. Diffused light
- Figure 219. Public to private zones
- Figure 220. NK'Mip centre, Wall section

4.4.2.3 Wind-tower effect
4.4.2 Other Useful

4.4.2.1 Sunlight

NK’mip centre; Uses rammed earth walls in the sunlit parts of the building to slow thermal heat gains during the day and discharges the heat slowly at night. A thick green roof system that continues from the hill behind the centre also has the same effect. Wooden finishes are used in the interior and along with joinery makes a better option over aluminium to keep thermal gains low.

Rozet centre; Uses solar panels to aid in the significant energy demands. Solar energy

Uluru-Kata Tjuta: Uses mudbrick cladding locally sourced to utilise cooling qualities of mud and wall mass to provide protection against heat gains. Australian timber and roof shingles are used throughout the building. Outdoor paving is made of compacted gravel and sand instead of concrete paving and to make the space environmentally friendly.

4.4.2.2 Ventilation

NK’mip centre: Located in a desert environment with weather differences between -18° and 40°. 104 Radiant cooling is installed in the ceiling and walls to heat or cool the building using water with controlled temperature. An air displacement system that is installed underfloor flows throughout the building from grilles. The stack effect is used for return air supply and no mechanical fan power is required. 105 These two systems work together to provide quality indoor air environment without the need of traditional HVAC systems. 106

Rozet Centre: Natural indoor and outdoor airflow is used for the interior ‘street’ area. Air conditioning is used for the rest of the building.

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106 Ibid.
4.5 Materials inspiration

Figure 221. Wall surface texture against sunlight, uneven surfaces

Figure 222. Shaded path with filtered light, sandy hues

Figure - small window detail, mixture of rammed earth and stone wall foundation
Figure 223. Contrast between plastered smooth wall surface and rocky, uneven surface, narrow opening for light shaft and diffused light

Figure 224. Contrast between even block wall and rocky uneven texture
Figure -
5.0

Site Approach

5.1 Site Selection
5.2 Site Context
5.3 Water Context
5.4 Privacy and Boundaries
5.5 Programme Distribution
tourism

housing & retail

government & public

industrial

Figure 225.  Khasab analysis of village activity
Figure 226. Khasab analysis of zones

- retail
- residential
- industrial & government
5.1 Site Selection

The research conducted on cultural centres found that they are generally placed in parts of a town that are a hub for different social activities. This includes shops, eating areas, outdoor areas and dense residential zones. The activity around the centres ensure that the centre will be within close proximity to the locals.

Two sites were considered for the Cultural Centre. Site one is located North of Khasab by the sea. This zone contains more tourism activities and is near the entry points to the town; the ferry stops and the vehicles entry through the only road leading to Khasab. The fort is just south of the site along with a mosque and houses. A large hypermarket exists on the east side. The site is currently empty of any structure and is sometimes used for parking or as a boat stop by the waters edge.

Site two is surrounded by more activities that engage the locals. There are a variety of shops, a bank, a pharmacy, and a main road south of the site, and a few residential blocks above four stories high to the east. The northern side has houses and a palm grove is located on the western edge.

Site two was chosen for the qualities that make it suitable for a cultural centre.

Figure 227. Areas in relation to each other
Figure 228. Area 2

- Appeal court
- Private/residential
- Money exchange, car rental, bank, electronics, general restaurants...
- Centre for children w/ special needs
- Hospital
- Agricultural development centre

Area 2
5.2 Site Context

Figure 229. Sunlight path
Figure 229. Sunlight path

Figure 230. Building footprint
Figure 231. Building types
Figure 232. Aerial of chosen site.
Figure 233. 3D form of building in relationship to surroundings

Figure 234. photographs of surroundings

Figure 235. photographs of surroundings
5.3 Water Context

As mentioned in the research part of this document water is significant element in Khasab’s landscape. The building will collect rainfall, then use it as a waterfall element that will flow through part of the building and irrigates a green area. The intensity of the rain will be physically revealed in the waterfall feature, showing how much water is collected. Large flows will mean a larger rainfall collection. Water therefore becomes an active physical element in the building that correlates with the amount of water saved by the building.

The roof of the building will need to handle a large amount of rainfall at one period of time, and also be usable for foot traffic when there is no rainfall. In this way it can be used for other purposes.

There are three important journeys for water: from the mountains into dams, dams to paths, paths into recharge wells or out to sea. There is an existing path of water flow from one of Khasab’s dams that stops several metres ahead of the building’s southern edge. At that point, the water flows below the ground and out to the sea. This path provides the main axis of the building as it denotes the direction of water flow and makes the path more prominent. Making this path more obvious to the users will be beneficial to add to the local’s awareness of the path and how it works. A stop point will be added along the path so the flow will be partly visible in the building, forming an oasis opening representative of a birkat.

Water can also be saved from washrooms and re-used as grey water to irrigate the field outside or the oasis in the building.

Overall, the building will include three types of water collection zones; the roof, the waterfall with oasis, and the recycling of water.

Figure 236. Water axis of site
5.4 Privacy and boundaries

Each side of the site features different conditions that will affect the facades of the building. The street side of the site will be busier than all other sides and the façade will need to respond to add privacy to the building with attention to the sidewalk entries. The northern side is empty, as the existing minor dwelling has been demolished and could possibly be used for building activities. The groves zone is also empty but has softer qualities because of the existing vegetation and privacy. Activities on this side will be weather dependent and could be almost exclusively for the users as the area is already fenced. The southern façade will also be a busy side but with pedestrian traffic as there are existing shops. It will work perfectly for a main entry that faces the main street.
Figure 239. program distribution
5.6 Programme distribution

East: Programmes that face the street can be for spaces that do not need to sprawl out. Other activities such as the auditorium and classrooms need to be in closed rooms. An entry will be in the form of small corridors to minimise noise intrusion and symbolise that it is a minor entry. This can also be an entry point for those wishing to access classrooms without walking through the main entry.

South: The main façade will need attractive activities, so the café, shop and exhibition space have been placed along this edge. Sunlight is prominent on this side so it a shading solution must be designed.

West: The building does not need to extend far into the green space, instead it could make use of it by introducing a sprawl for the western façade. Activities such as the theatre, library, open space, café and pedestrian zone can sprawl outside the edge of the building. For these activities to be usable several weather adjusting devices need to be planned with some level of control, as the afternoon sunlight will affect this space.

South: The exterior part of this space can also have limited sprawl to allow outdoor activities. This may include dances or processions that need a starting and ending point.

Landscaping: Need to introduce a courtyard space that leads to the Southern entry. The courtyard needs consideration as to how it will be used as it will be largely weather dependant. It will be a connection between the existing shops, paths and street and make the building front inviting. The water path can be represented in a partly covered or uncovered path that continues towards the building.
6.0 Design

6.1 Layout
6.2 Creation of Zones
6.3 Climate
6.4 Concepts
6.5 Developed Design
6.6 Passive Design Incorporated
6.7 Activities
6.8 Water Treatment
6.9 Roof & Basement
6.10 Facade Treatment
6.11 Internal Environment
6.12 External Environment
6.1 Layout

Figure 240. arrangement of activities with axis
6.2 Creation of zones
6.3 Climate
6.4 Concepts

Figure 241. Floor plan 00
Figure 242.  floor plan 01
Figure 243. floor plan 03

- theater
- auditorium
- speaking
- technology
- oasis
- lab
- public display
- learning space
- green wall
- art studios
- gallery
- shop
- cafe
- library
6.5 Developed Design

Figure 245. developed floor plan
The original idea for this project was to design a development around the coast of the Arabian Gulf, as I grew up in that area and wish to see valuable projects being built. Water was definitely valuable as it symbolised life in the heat of the desert. Valuable terms of buildings to me means something that is useful, enjoyable and would add benefit to the public or users, as well as fitting within context. I then had the idea of using water for the benefit and enjoyment of the public, though the treatment of a precious resource in this sense proved to be challenging. Saving water in the arid climate and using it for purposes other than serious work can seem contradicting to the idea of saving.

That was the moment when I started to look more into the popular modernised approach to buildings in the Arab Gulf, most of which contradict the idea of being ‘modern’ while causing more problems. The troubling idea for me is that residents believe that this is the best way to move forward, which caused me pursue the idea of generating awareness through a building. Oman had the best background for a project that needs to incorporate ideas of sustainability, in both social and technological terms. The effort that is being made to base building and social progress on education made it even more ideal as a site for the building.

I looked at Khasab as an isolated town that is planning to build new developments to benefit the population. The lifestyle and past building methods are researched to find how people survived without modern equipment. New methods from technology, to social approach, are studied to be incorporated into one building. The combination of these two approaches, along with cultural references, would produce a cultural centre that generates public awareness of the importance of sustainability.

Water becomes useful to create awareness by the way it is treated throughout the building. Khasab has reoccurring problems of flash flooding resulting from rainfall. Connecting this idea along with Oman’s diminishing water resources turns water into a main feature of the building. I used it in the project as a playful element the signifies how it changes the atmosphere when present, and how saving this resource is in the interest of the population.
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