International Master of Landscape Architecture

SOUTH TYROL
CULTURAL LANDSCAPES

Sustainable landscape development scenarios for the province of South Tyrol

PROJECT DOCUMENTATION

International Master of Landscape Architecture

SOUTH TYROL - Cultural Landscapes

Sustainable landscape development scenarios
for the province of South Tyrol, Italy
Project Documentation

IMLA - Main Project I / 2nd Semester 2016

IMLA - International Master of Landscape Architecture
Weihenstephan-Triesdorf University of Applied Sciences, Freising
Nürtingen-Geislingen University, Nürtingen

www.imla-campus.eu

Best of South Tyrol
image: Alessandro Masera

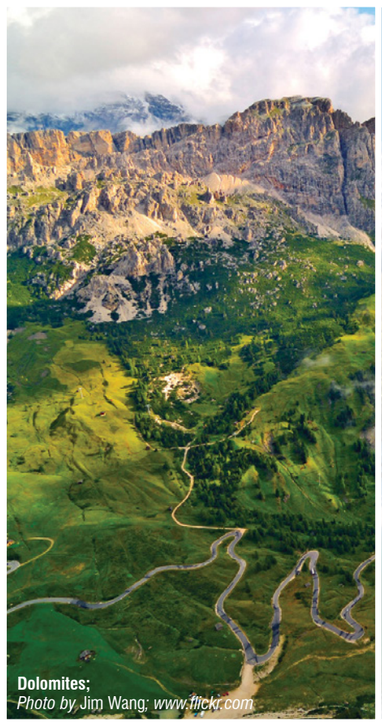
CONTEXT

Sustainable landscape development scenarios for the province of South Tyrol

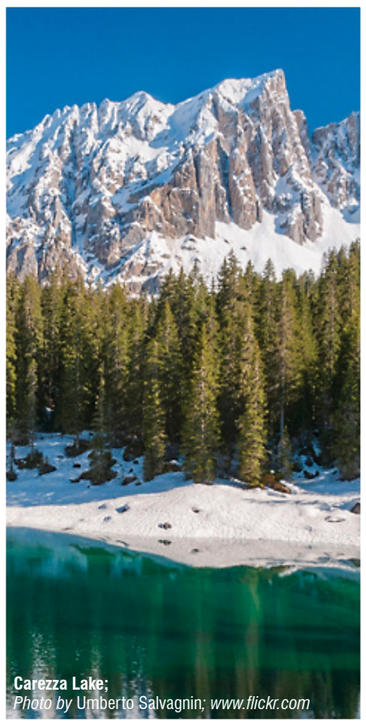
Photo by Allan Harris; www.flickr.com

The Italian province of South Tyrol is a large mountainous and alpine area. Here you see so-called earth pyramids in front of a typical small rural village near Bolzano.

The area of the Province South Tyrol. *Source: Google Maps*



Dolomites;
Photo by Jim Wang; *www.flickr.com*



Carezza Lake;
Photo by Umberto Salvagnin; *www.flickr.com*

Reschensee;
Source: reddit.com

The province of South Tyrol

There is hardly any region in Europe with such a coherent and well-known brand like South Tyrol. The region stands for scenic alpine landscapes, well developed summer and winter tourism, and high quality products. The region and its people combine tradition with innovation, local cultural heritage and global openness.. They are in Italy, but also not…a region, self-confident and in many features a pioneer!

What are the reasons for becoming such a well-reputated region? What are the current and future challanges, in order to sustain the regional strengths? Or more concretely: Which programmes, plans and instruments are required in order to enhance a sustainable regional development?

South Tyrol (German and Ladin: Südtirol; Italian: Sudtirolo, also known by its alternative Italian name Alto Adige) is an autonomous province in northern Italy. It is one of the two autonomous provinces that make up the autonomous region of Trentino-Alto Adige/Südtirol. The province has an area of 7,400 square kilometres (2,857 sq mi) and a total population of 511,750 inhabitants (31.12.2011). Its capital is the city of Bolzano (German: Bozen; Ladin: Balsan or Bulsan).[1] ■

[1] https://en.wikipedia.org/wiki/South_Tyrol

PROJECT

Project objectives: sustainable development in three sub-regions

Vinschgau; *Photo by Armin S Kowalski; www.flickr.com*

Bolzano; *Photo by Luigi Mengato; www.flickr.com*

Puster Valley, Bruneck; *Photo by Eric Huybrechts; www.flickr.com*

Sustainable development focuses on preserving the diversity of traditional cultural landscapes and developing new cultural approaches while maintaining sustainability in a flourishing economy. The sub-regions we want to work with are:

Vinschgau

• Vinschgau is the name for a 75 km long part of the Etschvalley, starting at Reschen pass, which is the entry to the south. The project includes also the secondary valleys like Münstertal, Matschertal, Schnalstal;
• Vinschgau has very low rainfall (about 500mm) and specific and hundred of years old watering system (Waalwege);
• Vinschgau has a specific landuse and was wellknown for the wheat production which changed to grassland and now to apple plantations (more than 12 Mio trees);
• Vinschgau has been settled since Roman times and has the historic Via Claudia Augusta and old cities, villages and castles (Churburg, Meran, Glurns);
• There are famous glaciers and skiing areas like Sulden (Ortler) and Schnalstal;
• The only national park of the region of South Tyrol can be found here: Nationalpark Stilfserjoch.

Meran, Überetsch, Bozen and Lowland

• This area has a very mild climate and has since centuries a traditional wine production landscape;
• On the famous „Südtiroler Weinstrasse“ are well known villages with a long history like Eppan, Kaltern, Terlan, Adrian, Algund;
• The two main cities Meran and Bolzano are very different in their profile. Meran is well known as a wellness location with thermal baths. Bozen is the economic heart of South Tyrol and offers ideal conditions for working and recreation.;
• The mountain areas along the Etsch valley are not so high and they have large plateaus with agricultural lands, mostly grassland.

Puster Valley and Northern Dolomites

• Puster Valley is situated between the Central Alpes in the North and the Dolomites in the South with two very different landscapes;
• In the North are massive mountain chains consisting of dark rocks, long valleys like Ahrntal and Antholzertal which are leading towards the main ridge of the Alps far over 3000 m;
• In the South are the Northern Dolomites which are separate alpenstocks including widespread (Alm-) plateaus consisting of light Dolomite with characteristic forms like „3 Zinnen“;
• The Puster valley itself can be divides into three parts. The lower Puster valley from Franzensfeste just before Bruneck is narrow and shady;
• The middle Puster valley from Bruneck to Toblach is opener and in intensive use by settlements and agriculture;
• The high Puster valley from Toblach to Sexten is dominated by the impressive Dolomites like 3 Zinnen;
• Near Bruneck there is the famous Kronplatz, a intensive skiing area with an outstanding scenery;

During this project the students have developed proposals for sustainable landscape development for future development of landscapes in the South Tyrol Region. They developed a so-called DPSIR model and scenarios, and worked at different scales in order to illustrate and discuss both the potentials and the limiations of their ideas. The concepts were sub-region-specific. ■

SUPERVISORS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Thomas Marsoner

GUIDE

Each project starts with one title page that introduces the project team and gives a short overview about the conceptual idea. On the following pages the original posters are presented. In order to guide you through the brochure each project has its own colour that is shown at the bottom of each page .

Hochschule für Wirtschaft und Umwelt Nürtingen-Geislingen

HOCHSCHULE WEIHENSTEPHAN-TRIESDORF UNIVERSITY OF APPLIED SCIENCES

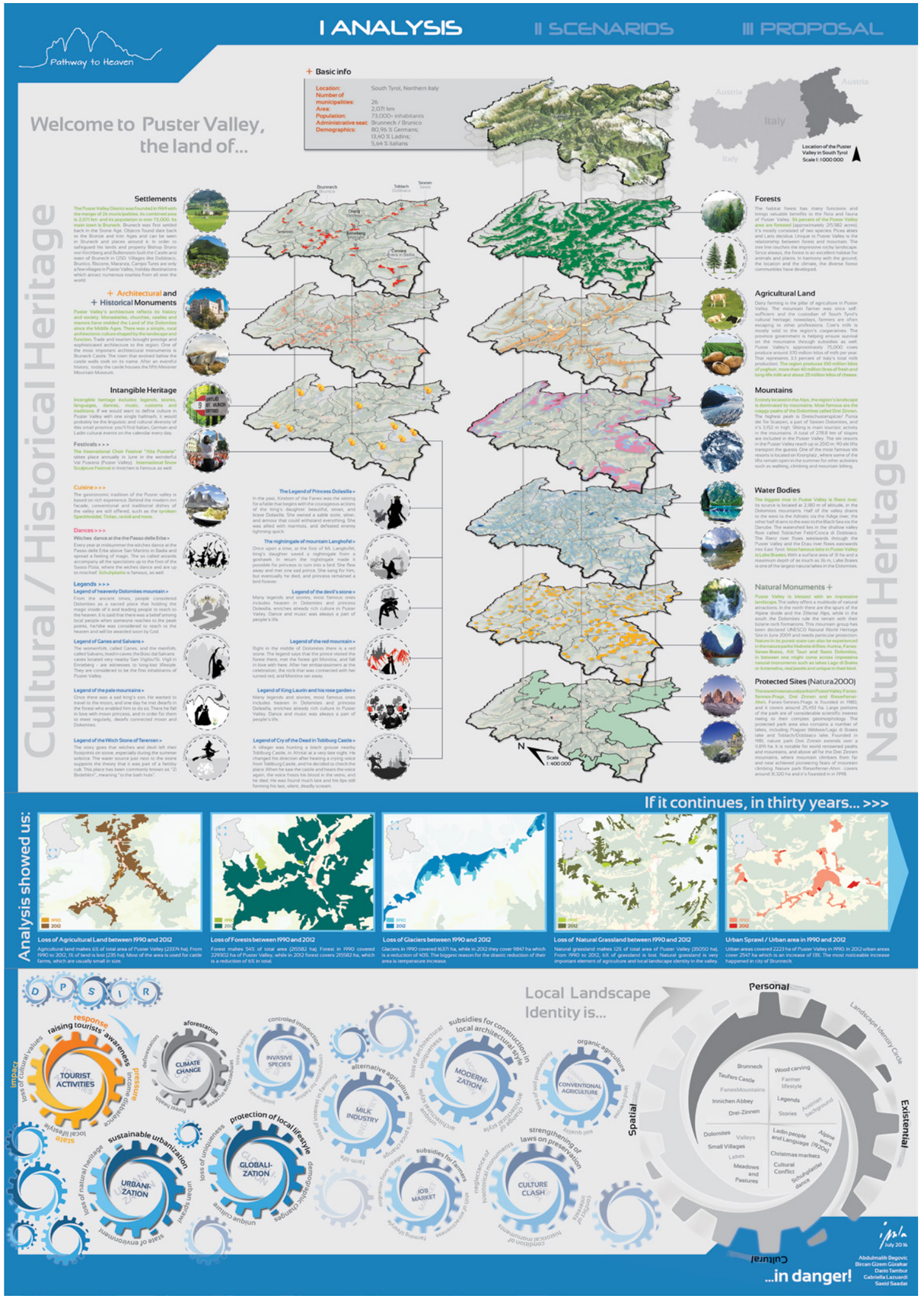
UNIVERSITY COLLEGE GHENT MEMBER OF GHENT UNIVERSITY ASSOCIATION

PATHWAY TO HEAVEN

Welcome to Puster Valley, the land of evergreen forests; small and idyllic farms; breathtaking mountains; beautiful lakes and rivers. We couldn't help but notice how culturally rich this region is. On one hand there are tangible elements of historical and cultural heritage: castles, museums and other architectural monuments; and on the other hand many intangible elements like legends and stories, languages and dances; enrich already rich culture. After deeper analyses of land use change, using ArcGIS, we concluded that the areas of natural heritage are decreasing, on one side, and on the other side, urban areas are increasing. DPSIR analysis was used for better understanding of processes and drivers that influence the region. It is concluded that the drivers that influence Puster Valley the most are: tourism, climate change, urbanization and globalization, and as result of their influence, local landscape identity is in danger.

Four above mentioned drivers were chosen to make two scenario matrixes, which resulted in making eight possible worlds. Worlds from the same quadrant were combined (except for worlds from III and VII quadrant) to make three different scenarios. First scenario is named **"Puster Perfetto"**, a future where climate change and urbanization are not playing major roles in shaping the landscape. There for this scenario is not chosen to work on, since it represents utopian future. Second scenario is named **"Ciao Cultura"** and it represents a future influenced by temperature increase, migrations, increased touristic activities, and so on, so it is chose to work on, since it's mostly likely to happen. Third scenario represents a worst case scenario, and it's named **"Terra Dissarmonia"**. As the name implies, it represents disharmonic future heavily influenced by chosen drivers. SWOT analyze helped in choosing the scenario to work on, and it also shows the dynamics of scenarios, with higher peaks representing positive outcomes and vice versa.

The idea behind proposal for the second scenario is "Pathway to Heaven", which is also the part of group's logo. Density analyses of historical and natural monuments, traffic and architectural monuments, which was done by using ArcGIS, showed the potential location of the connecting routes in Puster Valley. The main goals of the routes are: to connect tourists with local people, by building eco-villages as resting points on the route and the places where locals can offer their products and services to tourists; to bring more summer touristic activities into the region, for example orienteering; to revive the legends, in a way that enriches the landscape; to bring back the culture of thermal springs, by building thermal springs as a visiting points; to strengthen agro-tourism in the region. The final location of the route is "Drei Zinnen", which represents the heaven, as it was believed to be, in old times. As a conclusion of the proposal we can say: **"We show the way to heaven, not the way heavens go"**.



The chosen drivers result in eight worlds:

<< < < Scenario Matrixes

Climate Change Effects +
Touristic Activities –
Touristic Activities +
Climate Change Effects –
Globalization & Urbanization +
Touristic Activities –
Touristic Activities +
Globalization & Urbanization –

I II III IV V VI VII VIII

Scenarios

IV & VIII
II & VI
I & V

Overbuilt areas
Pressure on environment by tourism
Unprogrammed urban sprawl - Cities coming to people
Unplanned touristic activities
Deforestation due to urbanization
Migration from villages to urban areas

Urban Areas
Agricultural Land
Forest Areas
Touristic Resorts / Areas

N
Scale 1: 250 000

puster perfetto
CIAO CULTURA
terra disarmonia

WELFARE TOURISM INCOME DEVELOPED VILLAGES LOCAL IDENTITY UTOPIA WINTER CLEAN AIR IDYLLIC LAKES GREENERY SKIING BRIGHT FUTURE EXPANDING TOURISTIC AREAS

SUMMER PROMOTION SUSTAINABLE URBANIZATION RAISING TOURISTS' AWARENESS LEGEND REVIVAL PROTECTION OF LOCAL LIFESTYLE AFORESTATION

FACTORIES NEGLECTANCE POLLUTION ABONDED VILLAGES MIGRATION INFRASTRACTURE SMOG CHANGE METROPOLIS SOCIAL ISSUES DECREASE IN TOURISM MODERN LIFESTYLE

SWOT

STRENGHTENING LOCAL IDENTITY
DECREASED NATURAL AREAS
NEW BUSINESS OPPORTUNITIES
TOURISM EXPANDING
ENVIRONMENTAL PRESSURE
DEVELOPED VILLAGES

MIGRATION OF PEOPLE
DECREASE OF SNOW AREAS
LOSS OF LOCAL IDENTITY
INCOME INCREASE
INDUSTRIAL DEVELOPMENT
OVERCROWDED PLACES
NEW TOURISTIC ATTRACTIONS

DECREASE OF WELFARE
SOCIAL ISSUES
NEGLECTANCE OF HERITAGE
LOSS OF AGRICULTURAL LAND
URBAN SPRAWL

July 20 16

Abdulmalik Degovic
Bircan Gizem Gürahar
Dario Tambur
Gabriella Lazzardi
Saeid Saadat

Suitability Maps

« Traffic Density Analysis »
Valleys, especially Puster Valley from east to west, Ahrntal on north and Val Badia on south part of the region have the most traffic load since the transporation is easy to be held in valleys rather than on high mountains. This has both positive and negative effects on the region, such as making the transportation easier, but it causes air and noise pollution. Map shows the density of traffic in the valley.

Area with moderate traffic density
Area with high traffic density
Area with little or no traffic in comparison

Architectural Monumens Density » Analysis
Architectural monuments are usually located in urbanized areas such as villages and in the region of Brunneck. Map is showing areas with the biggest density of architectural monuments are Brunneck and its environment, Ahrntal, Innichen and Val Badia.

Area with high density of architectural monuments
Area with moderate density of architectural monuments
Area with few or no architectural monuments

Historical Monumens Density Analysis »
Historical monuments become are more densely set around settlements since the region was a host to many civilizations for centuries. Monuments are respectively protected by local people and administration. Map shows the density of historical monuments in the region.

Area with few or no historical monuments
Area with high density of historical monuments
Area with moderate density of historical monuments

« Natural Monuments Density Analysis »
Puster Valley has great natural potentials both for local people and tourists which directly affects economic value of region. Natural monuments mostly concentrate on Dolomites (Fanes Group, Sesian Dolomites and Riesenferner Group) since there are three different and huge natural parks. Even though natural environment is under threat around Brunneck because of urbanization, there are many natural monuments around Kronplatz and the beginning of Val Badia.

Area with moderate density of natural monuments
Area with high density of natural monuments
Area with few or no natural monuments

Merged Density Analysis »
In order to create or reform the existing routes, it is necessary to analyze natural, architectural and historical heritages with density analysis. All these analysis are realized based on a specific distance, which is optimized to 3000 meters, to walking and bike trails.

N
Scale 1: 400 000

Design Proposal

agro tourism
Enrichment of Summer Touristic Offer

Proposed Biking and Hiking Trail

eco villages
Connecting Local People with Tourists

Ahrntal

health garden

Lake Antholzer See

thermal springs
Reviving the Culture of Thermal Springs

Erdpyramiden

orienteering
New Touristic Activities

Sehenswürdigkeiten
Architectural Monuments
Historical Monuments
Natural Monuments

N
Scale 1: 150 000

moon garden
Reviving the Legends

Ennenberg

Proposed Tram Route

Innichen

Legend
Legend of Princess Dolasilla

Pfarrkirsche St. Vigil
with graveyard and graveyard chapel

Preserving Local Lifestyle
Farming and Milk Production

Protecting Natural Identity
Protected Forest

Connecting Local People with Tourists
Eco Villages

Promoting Natural Heritage
Accessible Attractions

Education
Ladin Language Summer School

Reviving Culture of Thermal Springs
Promoting Spa&Welness

Summer Tourism
Using Touristic Potential

New Touristic Activities
Orienteering

Connecting Tourists with Heritage
Restoring the Luster of Monuments
Introducing multimedia info points

Connecting Local People with Tourists
Involving Tourist in Everyday Life

Hiking and Trekking
Connecting existing trails

Reaching the Heaven

Tourism
Alpine Climbing

"We show the way to go to heaven, not the way the heavens go."

July 20 16

Abdulmalik Degovic
Bircan Gizem Gürahar
Dario Tambur
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Saeid Saadat

PUSTER VALLEY
NETWORKED 2040.

With still fresh memories from South Tyrol excursion, our process started with a round of brainstorming. Although South Tyrol seems to be well developed, when one looks deeper it is notable that there is still space for further improvement. Given that the topic of our project is sustainable development of South Tyrol, our first step was to analyze the current situation of society, economy, ecology and climate change. In this way, we covered all three pillars of sustainability (society, economy and environment). Some of the questions that emerged during the analyzing phase were: balance of summer/winter tourism, demographic structure and the reasons for migration, current state of farmers and agriculture, influence of climate change and Local identity. The methods and tools used for analyzing were DPSIR, spider diagram, GIS analysis, individual work as well as further research on these topics. These analysis were basis for the next step which was scenario development. The three scenarios were: 1.Preserve, Adapt, Develop, 2. # Pustervalley, 3. Education for Integration.

1. Preserve, Adapt, Develop

Is based on the prediction of climate change, current state of tourism, natural hazards and nature protection. The aim was to define the areas for further development in accordance to future natural hazards.

2. #Pustervalley

Aims to incorporate different SME (small medium enterprises) such as farming, craftsmen with leisure activities and local products through branding Puster valley.

3. Education for integration

Seeks to integrate very diverse society (German, Italian, Ladin groups) through education since early age. Furthermore, this scenario proposes Puster valley to become a regional education and research hub.

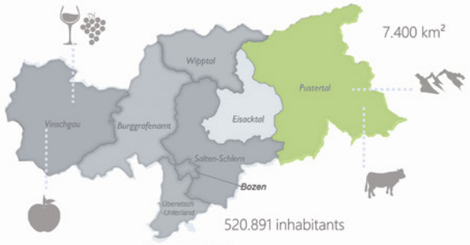
As a final result, all three scenarios were merged into a concept called Puster Valley Networked 2040. Based on the scenario results, we decided to work in Upper Puster valley. The concept is envisioned as a network starting from Bruneck with holiday farms, local markets, education and research facilities as well as hiking and biking paths. At the same time, the network supports the idea of connecting a national park in Austria with the nature park in Puster valley creating the biggest nature reserve in Europe.

PusterValley
Networked 2040.

ANALYSIS

South Tyrol location in Europe

South Tyrol and major near-by cities

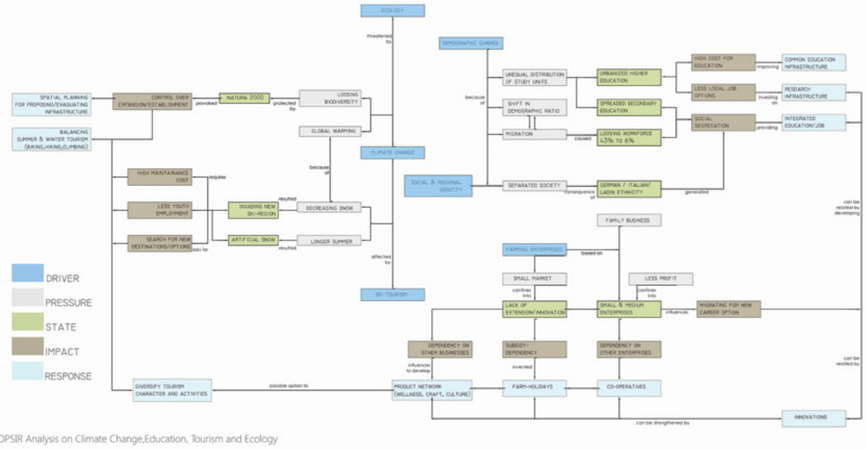


Map of South Tyrol

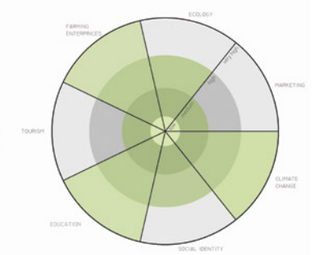
Brainstorming in relation to spatial and social terms of the region (initial phase of the project)

Methodology of the project

Relationship diagram with interconnections of topics (initial phase of the project)



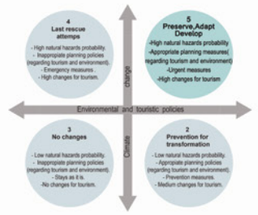
DPSIR Analysis on Climate Change,Education, Tourism and Ecology



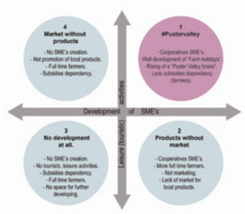
Spider Diagram (importance of topics this project covered)

GOAL:

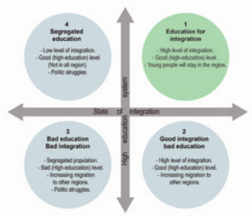
Achieve the optimum sustainable development of the region by social integration, education,diversifed economy, nature protection and balanced tourism



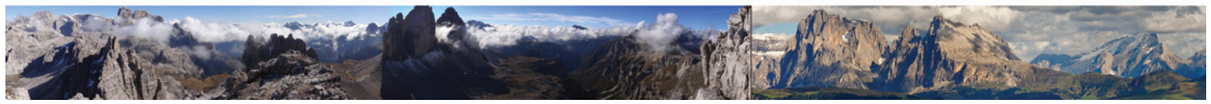
Scenario 1 diagram



Scenario 2 diagram



Scenario 3 diagram



PusterValley
Networked 2040.

SCENARIOS

1.Preserve Adapt Develop

It is 2040, the temperature is rising by 2°C. Natural hazards are more frequent.

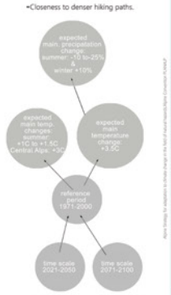
Preserve , Adapt, Develop?

climate change (prediction) + current natural hazards + current nature protection + current state of tourism = FURTHER DEVELOPMENT AREAS REGARDING NATURAL HAZARDS

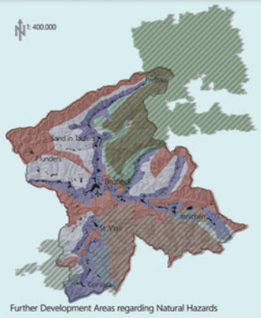
Prognosis-natural hazards

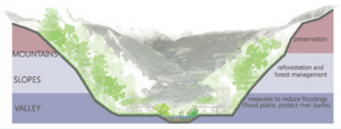
PARAMETERS OF RISK ASSESSMENT

- Closeness to settlements.
- Number of overlaid hazards. (Flooding, rock fall, avalanches, mud-slide, torrential flood)
- Closeness to touristic spots.
- Closeness to denser hiking paths.



Prognosis-temperature change





Schematic section of different measures

2. #PUSTER VALLEY

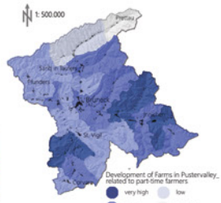
It is 2040. Excessively urbanized world is the current reality.

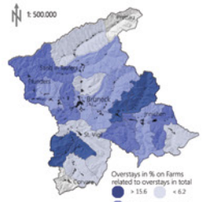
Why not an escape to PusterValley, the rural heart of Europe?

DEVELOPMENT OF SME farming as economic and touristic acitivity, farm holidays, craftmen, local products + LOCAL MARKETING (branding Pustervalley) + connecting LEISURE ACTIVITIES (hiking, biking, walking, skiing) with local products and economy = DIVERSIFIED ECONOMIC AND TOURISTIC ACTIVITIES

PARAMETERS FOR ECONOMIC LOCAL DEVELOPMENT

- profitability of farming
- amount of part-time farmers
- percentage of overstays on farms
- distribution of market places
- density of touristic activities



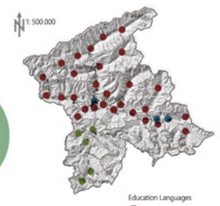


3. education for integration

In a globalised world, an integrated society is a must - so is a sustainable environment.

Is education and research an answer to both?

INTEGRATED SOCIETY through integrated education since early age + EDUCATION become an education hub with study fields in climate change, development and landscape architecture + RESEARCH HUB for Alpine region with several research spots in Puster Valley = REGIONAL EDUCATION & RESEARCH HUB

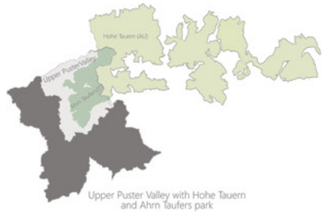


EDUCATION
present:
education studies; languages; arts; agriculture;informatics
new development:
regional planning; landscape architecture and design; climate change

RESEARCH
present:
medicine; social studies and integration; climahaus
new development:
alpine region; climate change; engineering ; environmental design and planning

PusterValley
Networked 2040.

CONCEPT

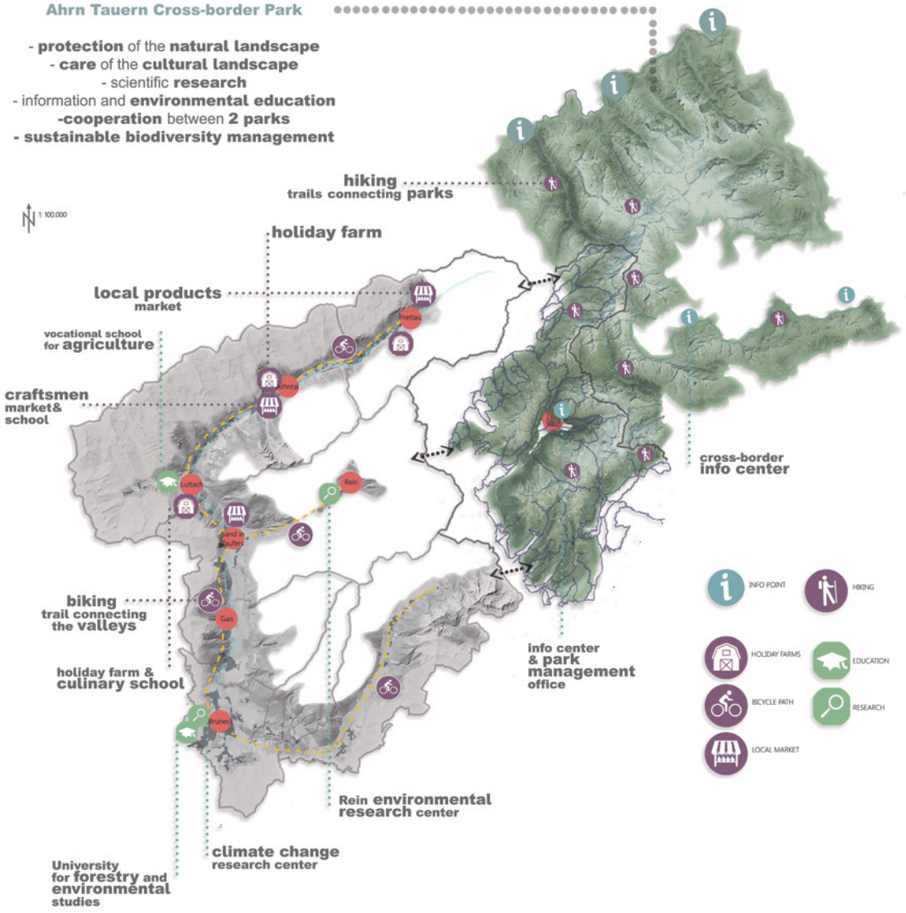


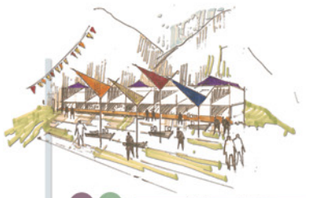
Upper Puster Valley with Hohe Tauern and Ahrn Taufers park

Cross border Park (Hohe Tauern-Austria & Ahrn Taufers-South Tyrol) + Diversified economic & touristic activies + Regional Education & Research HUB = BORDERLESS NETWORK

Hohe Tauern (Austria)
+
Ahrn Taufers (South Tyrol)
=
Ahrn Tauern Cross-border Park

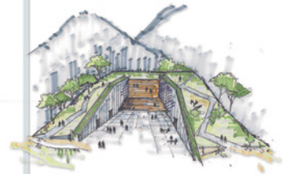
- **protection** of the **natural landscape**
- **care** of the **cultural landscape**
- scientific **research**
- information and **environmental education**
- **cooperation** between **2 parks**
- **sustainable biodiversity management**





Craftsmen Market

Information center



Environmental Research Facilities

Holiday Farm (SMEs)

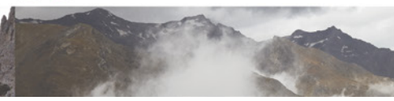
Adaptable Farmers Market

University city Bruneck

Environmental Research Center

Arhn-Tauern Cross border Park

Local products Market



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REINHARD MICHINGER

Hochschule Weihenstephan Triesdorf
International Master of Landscape Architecture
Main Project 5: Sustainable Development of South Tyrol
Summer semester 2016

supervisors:
Prof. Dr. Roman Lenz
Prof. Dipl.-Ing. Fritz Auweck
Dr. Werner Rolf
external supervisor:
Prof. Dr. Hartlind Lübbrecht

DIVERSITY FOR SUSTAINABILITY

Vinschgau is a region that is characterized by a great value of natural and cultural heritage as well as a lot of touristic and agricultural activities. Irrigation channels paths, natural landscape, the grand granary of the Tyrol, Via Claudia Augusta, the Alpine Pastures in Venosta Valley, Apples vineyards and local products, Mountain Villages in Venosta Valley are all unique elements of this rich territory. Threats of it are intensive agriculture, the impact of cars and mobility infrastructure and climate change.

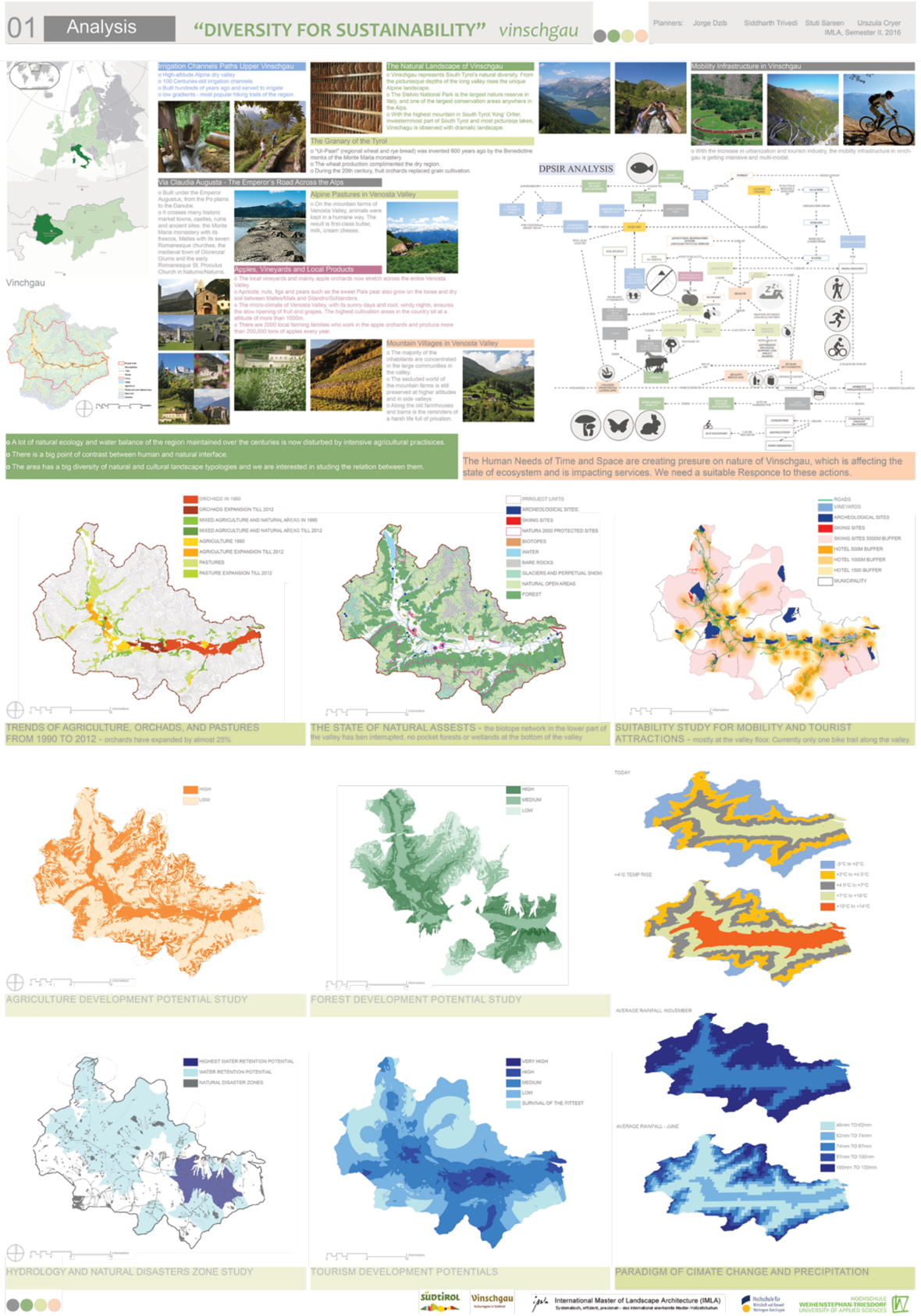
In order to understand this region a project boundary was chosen limited by geography. It covers the area of the central valley of Vinschgau because the following reasons:

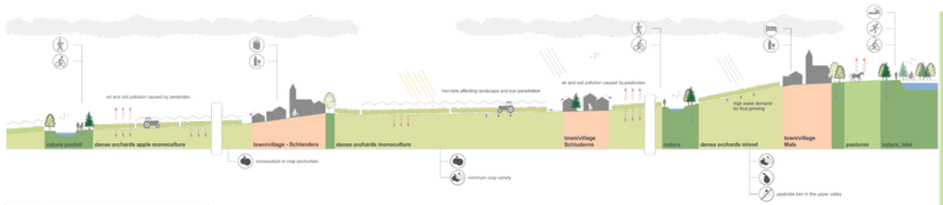
- A lot of natural ecology and water balance of the region maintained over the centuries is now disturbed by intensive agricultural practices.
- There is a big point of contrast between human interface.
- The area has a big diversity of natural and cultural landscape typologies and we are interested in studying the relation between them.

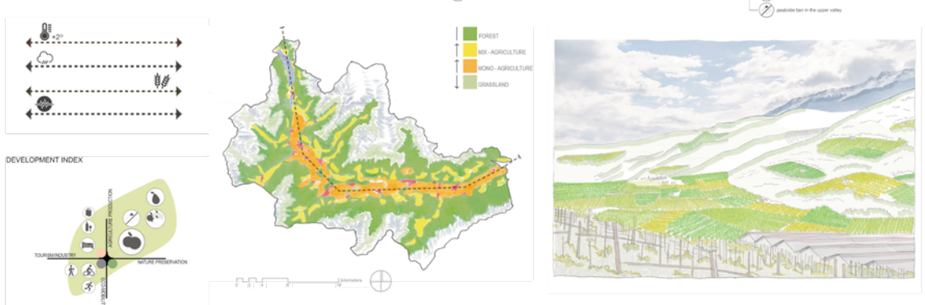
The data for analysis was evolution of agricultural use, the natural assets of the area, the touristic and mobility infrastructure, the hydrology and natural disasters in the zone and finally some prediction about increase of the temperature. The spatial analysis conclude that the human needs are creating pressure to the nature of Vinschgau. Three scenarios were made as possible scenarios as responses to these facts.

The first scenario **"Apple boom or apple doom?"** that make an insight on the impact of apple production, the second one is **"Aftermath of global warming"** that make an study on the possible consequences of global warm and the third one is **"Diversity for sustainability"** and the one chosen for proposal development. The four key topics in this last scenario is a balance between: agriculture, landscape and nature conservation, mobility and tourism. The aim of the project was to develop 35-year plan for the sustainable Valley of Vinschgau. We picked the Schlanders Municipality for the testing project, as it is a zone of a great complexity, where, we believe, the balance between the human activity and natural life was disturbed. Nevertheless, the area of Schlanders has a rich history and a beautiful landscape with the old town, vineyards, many waterways and has a potential to become a model, sustainable town for the region. Since it does not a ski resort, it's a good example, how Vinschgau towns can organise themselves once the traditional winter tourism is a possibility no more.

Predicted results of proposed changes after 30 years would be: availability of natural resources, high quality of the landscape, continuous agricultural production, resilience to climate change and development of all-year tourism. ■







SCENARIO I.

APPLE BOOM OR APPLE DOOM?

- Valley floor is cleared of natural vegetation and marshes are drained
- Southern slopes developed to vineyards, chestnuts and other fruit areas
- Cattle pushed back to high grounds, mostly northern slopes, causing clearing of forest for pastures
- Summer tourism may suffer due to the change of cultural landscape and loss of identity of the place
- Water needs to be pumped up from other regions to support massive fruit production
- Contamination of groundwaters with agrochemicals

S Good existing infrastructure.
Good economy.
Business established in the region.

W Dry area, lack of water locally.
Loss of biodiversity, monoculture.
Impoverishment of landscape.

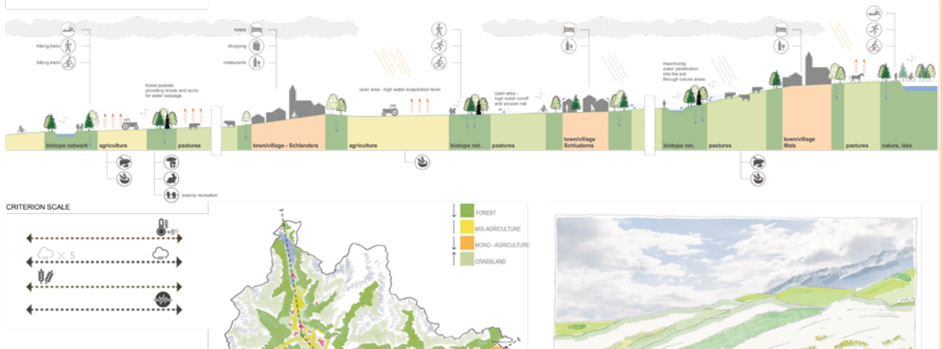
O Easy access to the market for new growers.
Easy access to knowledge.

T Contamination of soils and groundwaters with pesticides.
Loss of cultural landscape, species and traditional apple varieties due to monoculture.

LEAST PREFERRED SCENARIO

Although the temperature change is the smallest, the landuse choices in this scenario pose the biggest threats to the natural environment and the landscape. It is, however an actual trend in the valley.

How to remediate the critical situation?
- minimise the use of pesticides
- protect riparian forests and biotopes



SCENARIO II.

AFTERMATH OF GLOBAL WARMING

- Decline of glaciers causes lack of water in the valley
- Return of the pastures in the valley
- Return of natural vegetation in the valley
- Increase of tourism activities in the valley
- Walking and bicycling trails
- Check dams in the gorges along the valley for water retention and mudslides protection
- Upper parts of valley slopes reforested as they don't need to be used as pastures any more

S Return of cultural landscape of Vinschgau Valley.
End of monoculture, comeback of biodiversity.

W Economic loss for apple growers and collapse of connected industries.
Limited water sources in the valley.
Bare land prone to erosion and evaporation.

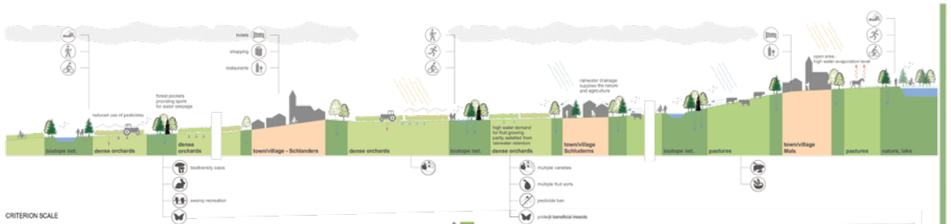
O Return of natural vegetation in the valley.
Development of dairy industry.
Development of tourism.

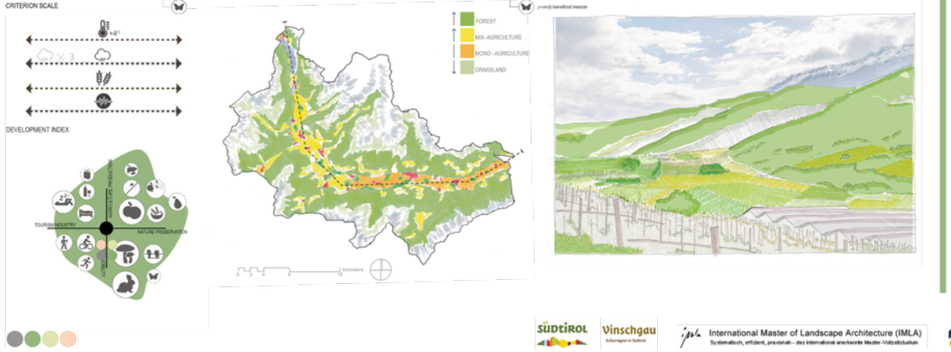
T Frequent dry spells and short but torrential rains may cause floods and mudslides
Oversupply of tourism facilities
Area getting to crowded with tourists

NOT PREFERRED SCENARIO

Due to the dramatic temperature rise and change in agricultural paradigm it is hoped that this scenario can be avoided.

How to remediate the critical situation?
- water reclamation, retention and disaster control
- erosion control





SCENARIO III.

DIVERSITY FOR SUSTAINABILITY

- Orchards stop expanding, upper valley continues as pastures
- Reintroduction of biotope network along the valley floor – increase biodiversity and landscape quality
- Network of walking and biking trails connection the biotopes and orchards and valley slopes
- Multiply fruit variety to increase resilience against pest without use of pesticides – patchwork of different orchards and vegetation types
- Construction of dams in gorges along the valley to retain water and protect from mudslides
- Lower parts of valley slopes partially used for cultivating nuts and other, upper as pastures

S Good existing infrastructure and economy.
Business established in the region.
Re-establishment of the biotope network.
Comeback of biodiversity, limited monoculture.

W Dry area, lack of water locally.
Possibly lower income for the growers.

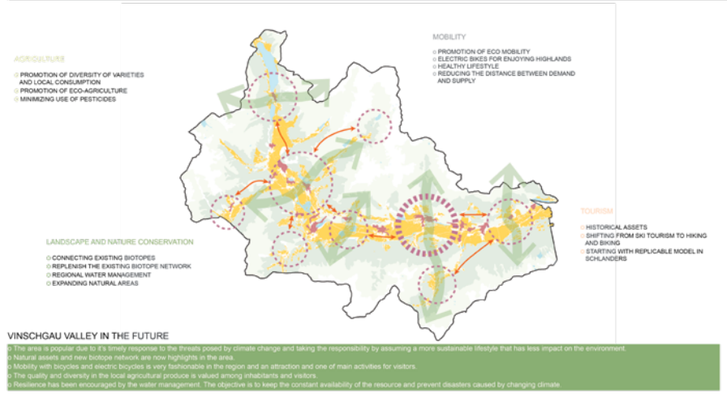
O Return of natural vegetation pockets in the valley.
Creation of interesting, diversified landscape.
Development of interesting tourism infrastructure.
Spring tourism – blooming orchards.

T Continuation of pesticide.
Loss of glaciers, limited number of streams.
Frequent dry spells and short but torrential rains may cause floods and mudslides.

MOST PREFERRED SCENARIO

Although the temperature rise is substantial, the land is used sustainably and with consideration towards all living creatures. Diverse landscape remains attractive. Scenario III is used as a basis for concept design.

How to remediate the critical situation?
- water reclamation, retention and disaster control
- minimise the use of pesticides (pesticide ban locally)
- protect the riparian forests



VINSCHGAU VALLEY IN THE FUTURE

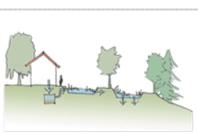
The area is placed due to its timely responses to the threats posed by climate change and taking the responsibility by assuming a more sustainable lifestyle that has less impact on the environment.
- Natural assets and new biotope network are now highlights in the area.
- Mobility with bicycles and electric bicycles is very fashionable in the region and an attraction and one of main activities for visitors.
- The quality and diversity in the local agricultural produce is valued among inhabitants and visitors.
- Resilience has been encouraged by the water management. The objective is to keep the constant availability of the resource and prevent disasters caused by changing climate.

The aim of the project was to develop 35 year plan for the sustainable Valley of Vinschgau. We picked the Schlanders Municipality for the testing project, as it is a zone of a great complexity, where, we believe, the balance between the human activity and natural life was disturbed. Nevertheless, the area of Schlanders has a reach history and a beautiful landscape with the old town, vineyards, many waterways and has a potential to become a model, sustainable town for the region. Since it does not a ski resort, it's a good example, how Vinschgau towns can organise themselves once the traditional winter tourism is a possibility no more.
Predicted results of proposed changes after 30 years would be:

- availability of natural resources
- high quality of the landscape
- continuous agricultural production
- resilience to climate change
- development of all-year tourism

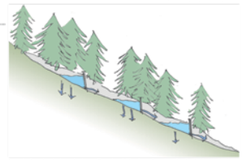
VISION OF RESILIENT SCHLANDERS MUNICIPALITY scale 1:20 000

WATER MANAGEMENT AS A VITAL ASPECT OF RISING RESILIENCE AGAINST THE CLIMATE CHANGE



decentralised wastewater treatment in reed beds for households located high up the slope and in secluded locations

rainwater retention on farms loated high up the slope



introducing check dams in the gullies should let the rainwater sip slowly through the soil, keeping it moist even during drought seasons, in the same time protecting areas at the bottom of the valley from flash floods and landslides

wastewater treatment plant park at the bottom of the valley, filtering municipal waste water

The masterplan for the resilient Municipality of Schlanders was developed based on three focal problems of the area:

SUSTAINABLE AGRICULTURE

The problem of monocultural agriculture was solved by introducing various biotops in the area, providing habitat for greateer amount of creatures, insects and plants. Among them are natural forest islands, traditional orchards, protecting old varieties of fruits from extinction and agroforests, providing a good example of sustainable and ecological land cultivation.

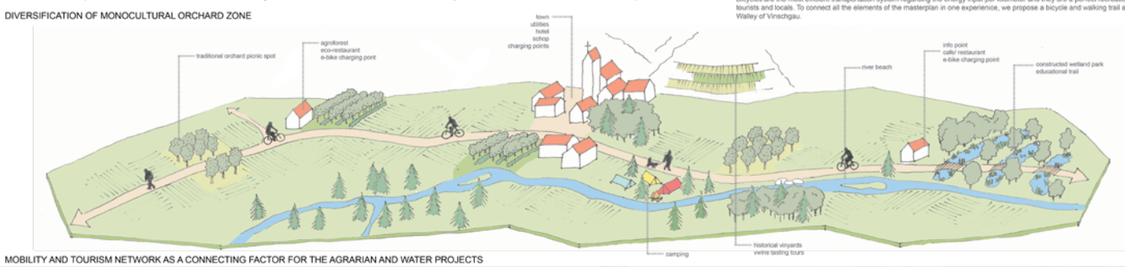
WATER MANAGEMENT AND RETENTION

Water is the most important resource for the continuity of life and in the changing climate it's vital to protect it's continuous supply. An array of solutions was proposed to stabilise the water management in the arid mountainous climate. Check dams in the gullies to slow the rainwater flow and erosion, retention ponds on the hillside farms, individual wastewater treatment system for secluded farms and a water treatment park in the valley.

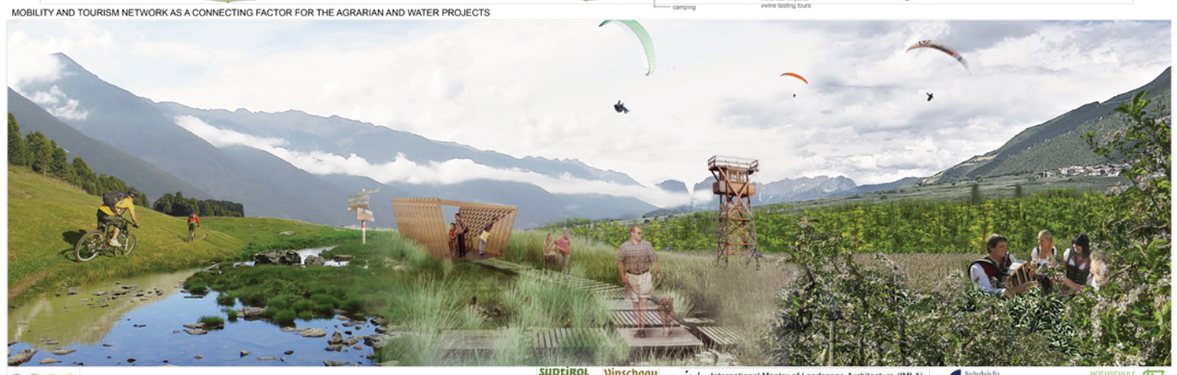
SYSTEM OF BICYCLE AND WALKING TRAILS

Bicycles are the most efficient transportation system regarding the energy input per kilometer and they are a perfect recreation both for tourists and locals. To connect all the elements of the masterplan in one experience, we propose a bicycle and walking trail along the Valley of Vinschgau.

DIVERSIFICATION OF MONOCULTURAL ORCHARD ZONE



MOBILITY AND TOURISM NETWORK AS A CONNECTING FACTOR FOR THE AGRARIAN AND WATER PROJECTS



RESILIENT LANDSCAPE

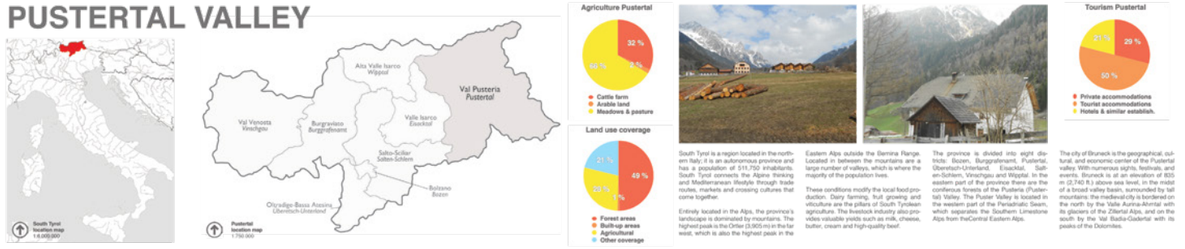
Working on a project of sustainable development of Pustertal in South Tyrol was a challenge due to the apparent perfection of economic, social and environmental sectors of the region. Within the research via the DPSIR method, we found out the main objectives as maintaining stable economy, maintain the state of significant natural Dolomite landscape, improve social and cultural issues, and enhance degree of sustainability in every dimension. After we found out the Impacts and Responses we realized the complexity of the region. Those impacts derivate into four more thematically directed DPSIRs about urban development which cause valuable change to the landscape, winter tourism, which brings the biggest income, climate change, which affects the whole environment and local Identity as important issue for the region with fusion of German and Italian culture.

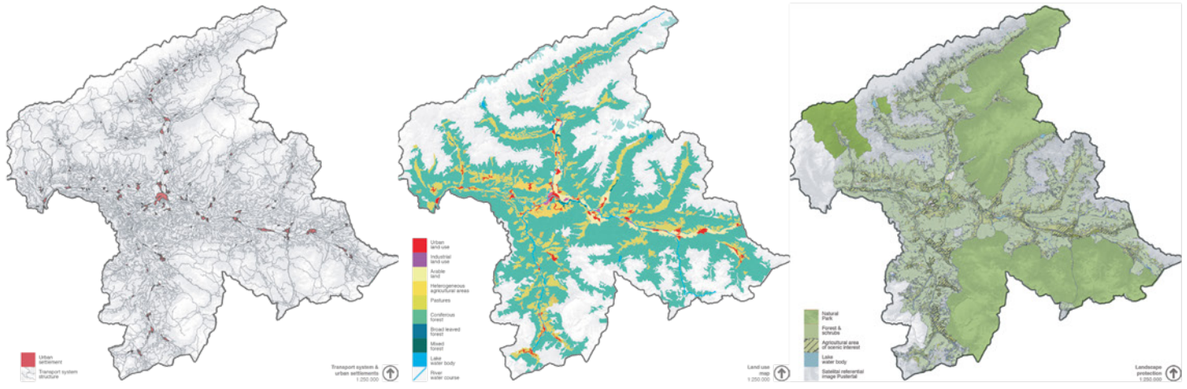
Collected responses from 4 DPSIRs were generalized in 18 criteria to evaluate possible scenarios and find the most relevant ones.
The main scenario is critical weather change and consists of **Drought Pustertal and Floody Pustertal**.

Climate change within 30 years can cause extreme dry and wet seasons, and prevention actions may be needed to be planned. The new reality based on this possible scenario brings as measures the relocation of urban settlements, changes in transport systems, increased offer of water sports, loss of pasture lands, and changes in variety of crops.

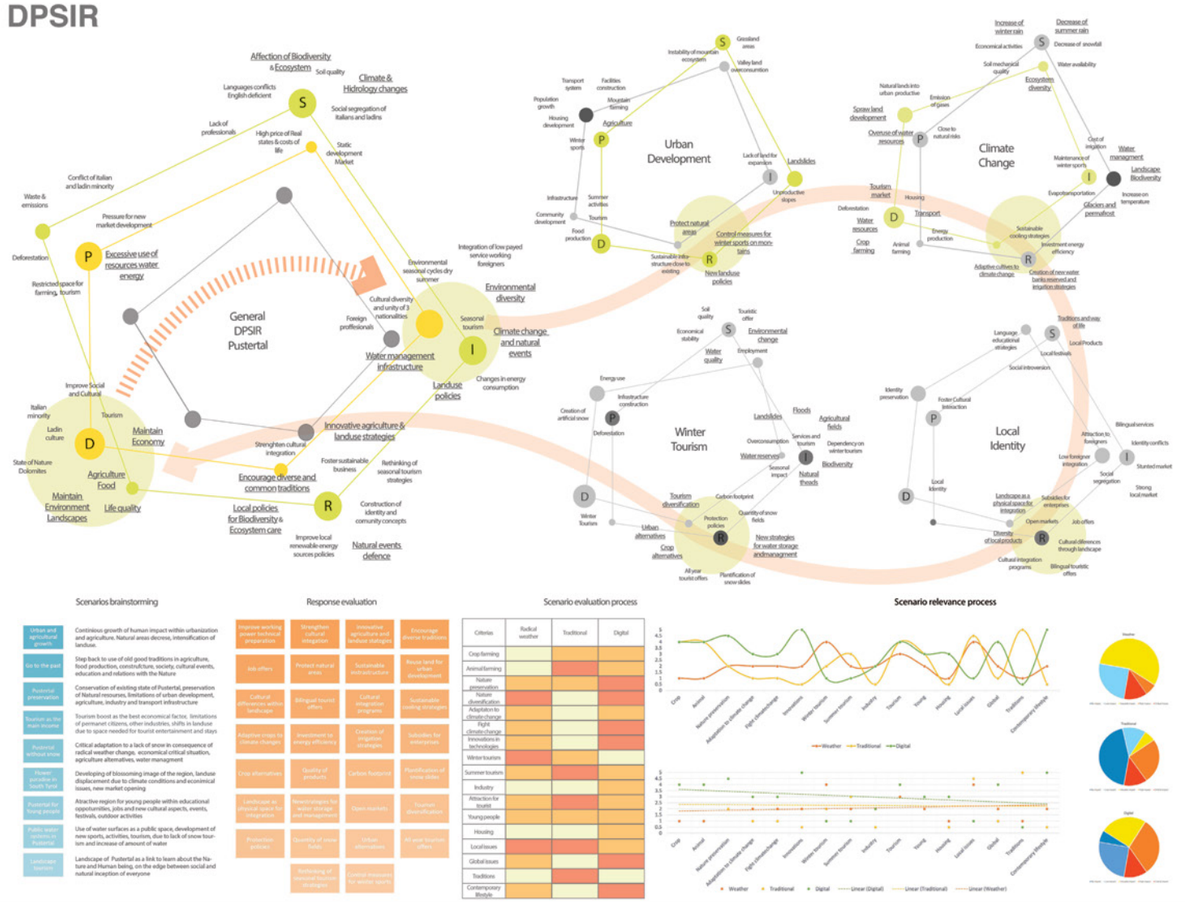
The other two scenarios showed a more positive metamorphosis of the region. Therefore, we took them into consideration combined in the main concept for sustainable development of the region. The concept joins the best out of traditional approaches for agriculture (resistant crops) and the most relevant technologies for monitoring climate change and biodiversity of the region. Finally the fusion of the 4 scenarios gave us the opportunity to create a concept solution for sustainable development.

PUSTERTAL VALLEY





DPSIR



INTERNATIONAL MASTER IN LANDSCAPE ARCHITECTURE | ELENA GORBACHEVA / ANI NALBANDIAN
DAMAYANTI PIÑÓN / CHRISTIAN SORIA

HOCHSCHULE WEIHENSTEPHAN-TRIESDORF UNIVERSITY OF APPLIED SCIENCES 01

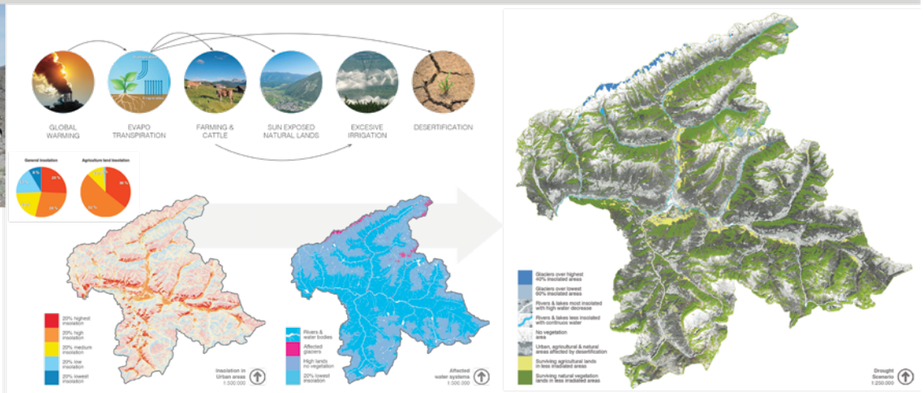
SCENARIOS | SUSTAINABLE DEVELOPMENT IN SOUTH TYROL
SUB-REGION OF PUSTER VALLEY

DROUGHT PUSTERTAL

"Global warming has increased to critical levels and evapotranspiration rised up to a 20%-more than 30 years before. This, added to the lack of rain has produced a drought season that has affected our crops but mainly almost all of our pasturelands. Since 4 months we don't have regular rain and the shortage of water is reaching a 80%. Now, our reserves of pastures to feed cattle are almost empty, it is impossible to irrigate artificialy all the extensions of grass we need because it is to expensive and we don't have enough water, so to manage the situation we will need to reduce the number of animals, is the bast we can do..."

Concepts
Increase of insolation and temperature
Increase of evapotranspiration
Desertification of Pustertal

Simulation/New reality
Re-location of urban settlements
Lost of pasture lands
Changes in variety of crops

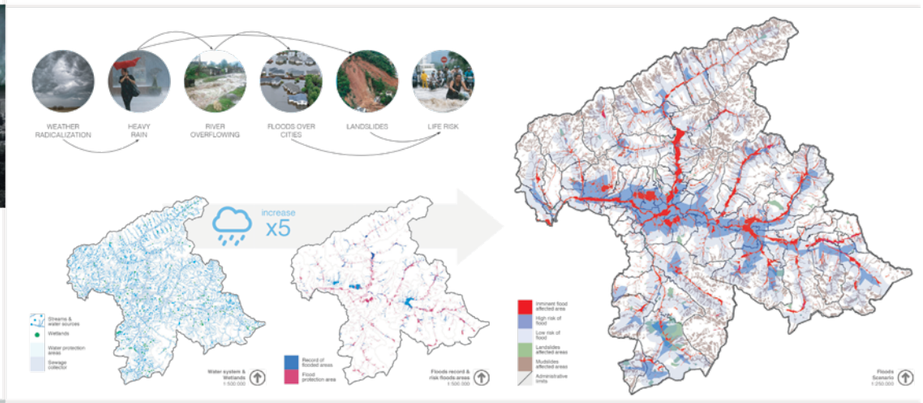


FLOODING PUSTERTAL

"In 30 years climate change has become extremely tangible. The difference between 4 seasons has disappeared and now it only chivides into a dry period with a lack of water, and another with a extremely rainy season, which has produced unusual floods and landslides very regularly. A safe environment for living has become very difficult and we need to learn how to adapt to it, to survive and protect our cities. Since to winters in a row we have had a superavit of water because of rain and this has changed the way we use land, how our houses and crops are located, and how we cam protect us from future phenomenas like these..."

Concepts
Unusual rainy season
Increase of flood areas

Simulation/New reality
Urban settlements under water
Changes in transport systems
Increase offer of water sports

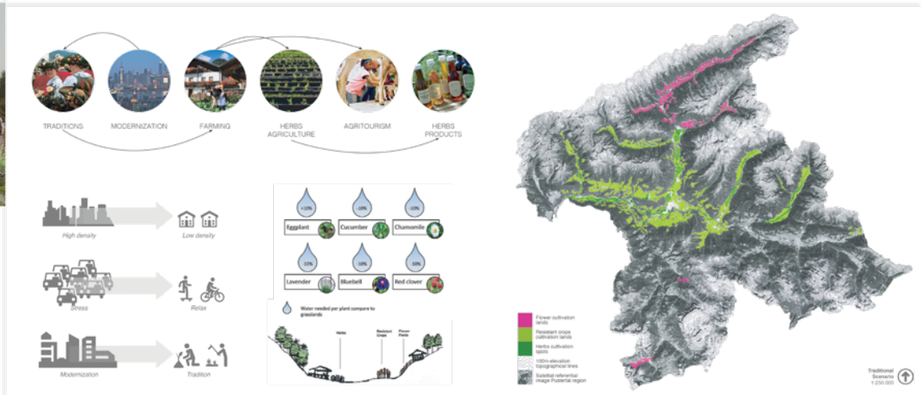


TRADITIONAL PUSTERTAL

"It is 2046, the major cities of the world have become so overcrowded; people don't have enough open spaces for relaxing and they are constantly looking for fairytale lands. This places provide different experiences of life, the way people used to live in former times. This living museums like Pustertal hold on to their traditions, showing how life was in the alpine region over 30 years ago. The protection of their landscape facilitated the task of showing outsiders how farming life was possible. Food production and animal farming using old techniques is possible. People can still experience that lifestyle as if they were traveling in time."

Concepts
Lifestyle experiences
Natural and primarily production
Ancient knowledge

Simulation/New reality
Increase of agricultural land
Diversity of crops and cultivation products
Farms as touristic offer
Diversity of local products: food and medicinal

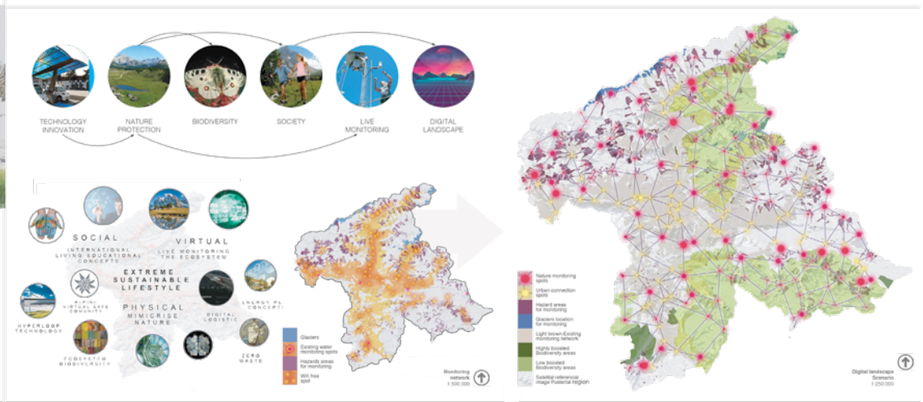


DIGITAL LANDSCAPE

"New times in Pustertal have provided the region with the latest opportunities. Based in a natural green diversified environment the Region has a strong independent economy, an open minded democratically society that invites you to live and be touched by life in love with the planet. Environment friendly Silicon Puster Valley offers high tech jobs, ecological startups with great resource base for implementation of ideas in different microclimates within the region. Sustainable living standards forced specific landscape image for natural lifestyle with the balance of the latest technologies and the newest discoveries of energy production."

Concepts
Extreme sustainable lifestyle
Urban mimicrising nature
Compact living

Simulation/New reality
No waste food production
Increase in biodiversity
Decrease in energy use



CONCEPT | SUSTAINABLE DEVELOPMENT IN SOUTH TYROL
SUB-REGION OF PUSTER VALLEY

RESILIENT LANDSCAPE

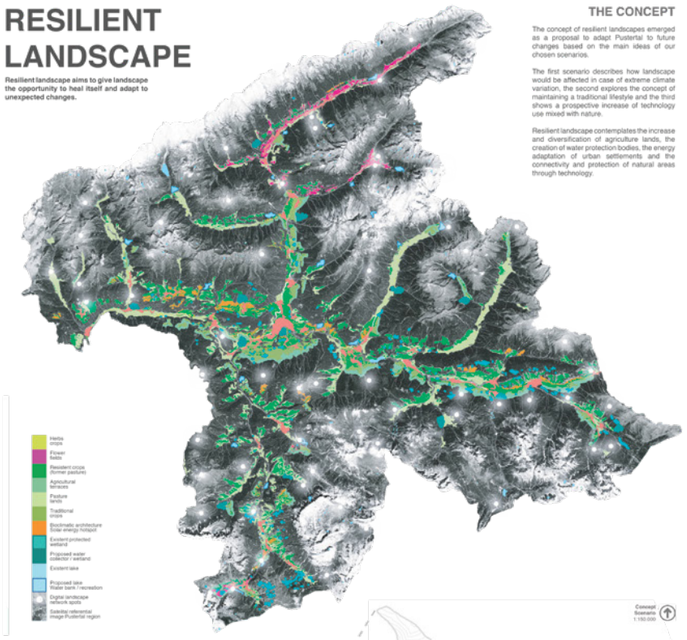
Resilient landscape aims to give landscape the opportunity to heal itself and adapt to unexpected changes.

THE CONCEPT

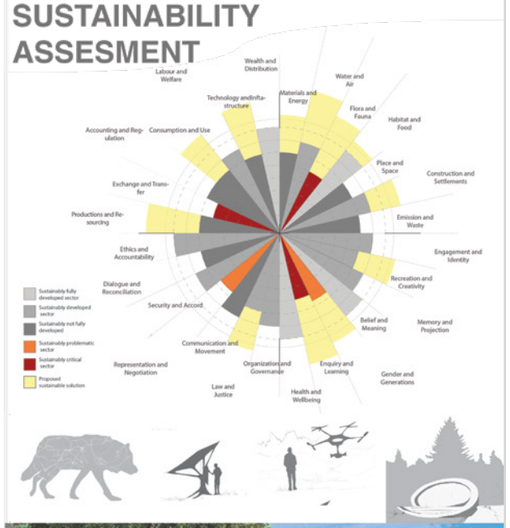
The concept of resilient landscapes emerged as a proposal to adapt Pustertal to future changes based on the main ideas of our chosen scenarios.

The first scenario describes how landscape would be affected in case of extreme climate variation, the second explores the concept of maintaining a traditional lifestyle and the third shows a prospective increase of technology use mixed with nature.

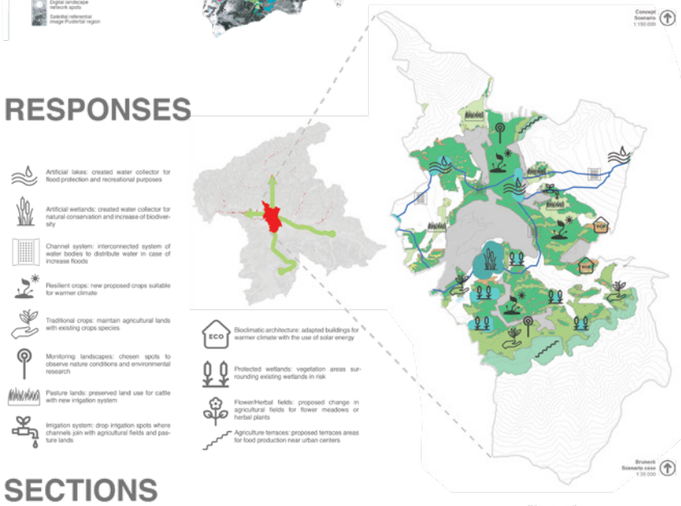
Resilient landscape contemplates the increase and diversification of agriculture lands, the creation of water protection bodies, the energy adaptation of urban settlements and the connectivity and protection of natural areas through technology.



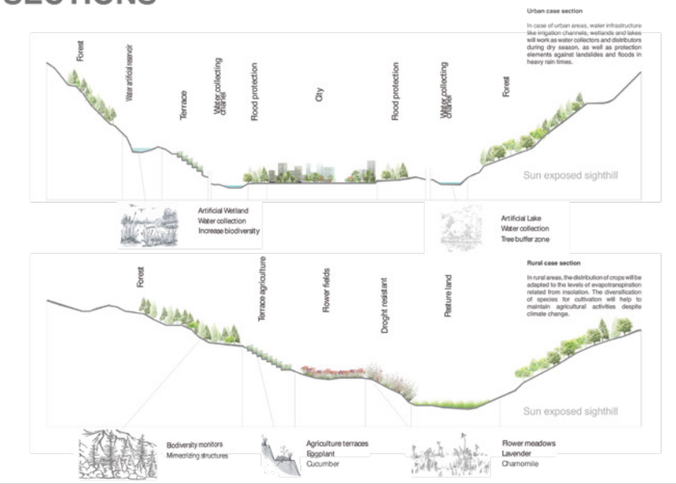
SUSTAINABILITY ASSESMENT



RESPONSES



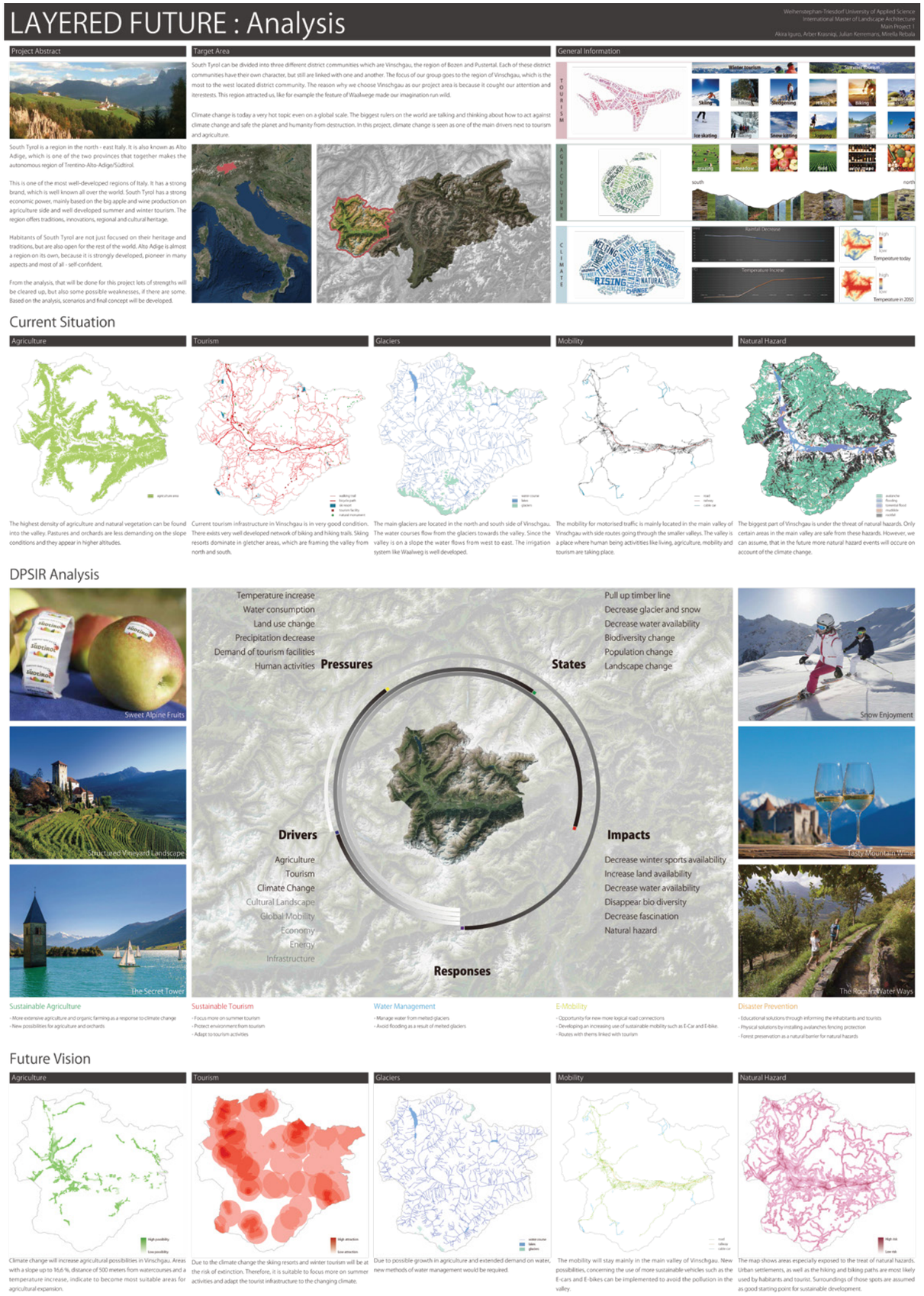
SECTIONS



LAYERED FUTURE

Our group is a mixture of nationalities, disciplines and characters. Architecture, Landscape architecture, project management and geography with spatial management are backgrounds that created a very diverse and creative team. The focus of our group goes to Vinschgau, district located in the west part of South Tyrol. Project **„Layered Future“** is based on the fusion of the most important drivers that are influencing this project area. As the starting point for our analysis, we decided to concentrate on the climate change. In the Alpine area, like South Tyrol, the impact of this factor is much more relevant. Out of the analysis, we decided to create scenarios, following the tree pillars of our project: tourism, agriculture and natural hazards. By pointing out actions, that should be taken within 10, 20 or 30 years, we wanted to give an outline for the future and raise awareness for the threats and opportunities that climate change might cause. Illustrations of the evolution should not just present how particular factors could develop during the time, but also show how we could act against it, starting from tomorrow. In the scenario „Tourism shift“ summer tourism will become more significant than the winter tourism activities. Under the influence of climate change and increasing temperatures, winter sports activities are going to face the lack of snow and melting glaciers. „Agricultural expansion“ underlines the opportunity, that global warming can give to farming activities. By taking the actions, aiming at sustainable development, we will promote the cultural landscape and enlarge its impact on the economy. The last scenario „Hazard prevention“ assumes, that climate change will be a big threat to the environment. Without proper preservation, this grave danger can get out of control.

Capacity for agricultural expansion, tourism attractiveness and zones especially vulnerable to the natural hazards were factors that created the Hot-Spots Map and helped suggest Mals as the most interesting area for sustainable development. In our concept, we wanted to involve the most important actions from the scenario phase. Summer tourism activities, like geo-tourism and ecotourism routes, as well as reduction of private transport and promotion of E-mobility, are the main assumptions of the sustainable tourism development. New waterways, aiming at preventing the valley from floods, as well as water management – the main feature of a multifunctional park – are answers for the natural hazards. Organic farms are a substitute for non-synthetic fertilised farms. The concept of a Multi-Functional Park is an idea which links all three of the important factors. A place, where the organic products from surrounded farms will be sold in a fair, regional way, where people will stop by during their hike and finally, where water excess can be collected in case of a flood. Our idea is to implement this kind of design in many possible places in the valley. To prevent, manage and adapt the climate change in a sustainable way. ■



LAYERED FUTURE : Scenario

Weihenstephan-Triesdorf University of Applied Science
International Master of Landscape Architecture
Main Project 1
Akira Iguro, Arber Krasniqi, Julian Kerremans, Mirella Rebaia

Tourism Shift

Equal possibilities for summer- and winter tourism create an offer of great fun and possibilities for tourists. In several years this balanced situation will take a turn and because of climate change winter tourism will feel the pressure. Summer tourism on the other hand will feel sure and will gain more and more importance and take over the areas where the winter tourism used to rule. In 30 years winter tourism will be the past and summer tourism activities will become the touristic core. Winter tourism will adapt to climate change or be taken over by summer tourism.

Driving Forces

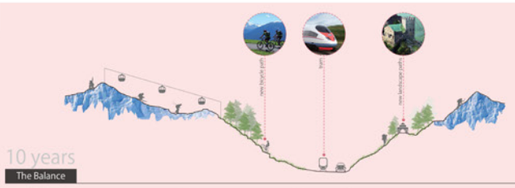
Climate Change ↘	Ecology ↗
Infrastructure ↗	Sustainability ↗
Government >	Competitors >

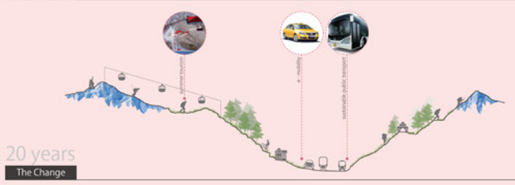
Strengths
- Good infrastructure
- Historically wealthiness
- Good interaction with international tourist
- Sport facilities located in the valley

Weaknesses
- Limited development options in attractive destinations because of constraints of space and high prices
- Difficult to avoid the negative impacts of tourism in high touristic seasons

Opportunities
- Development of new tourism
- Development of new cycling paths
- Climate change is a slow process
- Decrease of wasteland (27%)

Threats
- Skiing tourism will diminish
- Competition from other touristic destinations
- Fast increase of energy prices put pressure on skiing tourism profitability





ACTIONS

- Better accessability to natural landscapes
- Improve public transportation
- Improve cycling paths
- Avoid use of private transportation
- Provide public transport only
- Invest in summer touristic activities
- Shift from skiing to snow-shoe hiking
- Focus more on summer activities
- Use ecotourism for environmental conservation
- Develop agroturism for sustaining environmental characters.

Agricultural Expansion

In the first 10 years areas, which are not covered by glaciers or snow will slowly increase due to climate change. Because those areas have poor soil condition, it would be proper to improve it. Within the next 20 years new plants and organic agriculture fields could be planned in a non-used area, which thanks to soil improvement and increasing temperature will expand. If an amount of forests and agriculture products increases, biomass plant could work in this region. Between next 20 and 30 years forests and agriculture areas will increase more and more. It must be maintained properly with use of more facilities, such as cable car for purposes of the agriculture sector.

Driving Forces

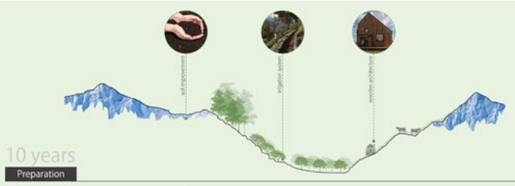
Climate Change ↘	Technology ↗
Infrastructure ↗	Sustainability ↗
Government ↗	Competitors ↗

Strengths
- Increase green materials
- Enhance existing sustainable system
- Increase agriculture and its facilities

Weaknesses
- Increase worker demands
- Technical difficulties about biomass energy
- Limited tourism development

Opportunities
- Prevent climate change
- Become reference of agriculture and sustainable system

Threats
- Dominate agriculture economics
- Focus on mono-agriculture production



- Improve soil condition in upper valley
- Improve irrigation system
- Use regional wood to create typical South Tyrolian architecture
- Plant new trees in upper valley
- Install biomass plant and use wood chips and apple bioethanol
- Cultivate new, organic fields in possible areas
- Maintain existing and new forest to keep cultural landscape and to prevent progressing climate change
- Popularize multifunctional farming
- Install cable car for agriculture products to carry them between high altitude and valley floor

Hazard Prevention

Nowadays, there are some natural hazards, that can cause danger in the valleys, where people live and most activities are happening. These natural hazards do not cause too much damage yet. Due to the climate change there will be an increase in frequency of those events. The temperature will increase, which will melt glaciers and the precipitation structure will be changed, causing short, heavy and inaccurate rainfall, which will cause more flooding, mudslides and rockfalls. In 30 years, the natural hazards will increase and will threaten the area more than before. Measures of prevention should be taken to protect this area of the municipality of Mals.

Driving Forces

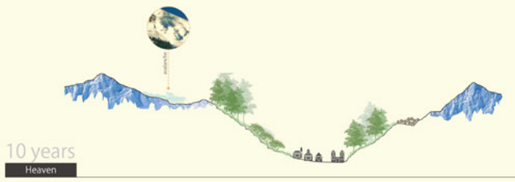
Climate Change ↘	Technology ↗
Infrastructure ↗	Sustainability ↗
Government ↗	

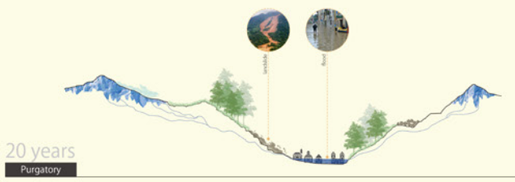
Strengths
- Keep us aware of the power of nature
- Can have positive ecological effects
- Creates danger
- Forests protect villages from natural hazards

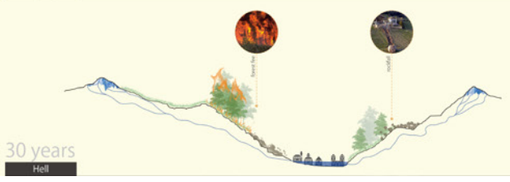
Weaknesses
- Temporarely or permanently changing the landscape
- Danger for humans, agriculture and tourism

Opportunities
- Physical protection of the valley
- Use energy of natural hazards (example: collect and use the water from the floods)
- Give communities the change to improve their infrastructure
- Natural hazard alert system

Threats
- More natural hazards in the future because of climate change
- Natural hazards change the landscape
- Disapearing/extinction of certain fauna and flora species
- Natural hazards are a threat for tourism and agriculture





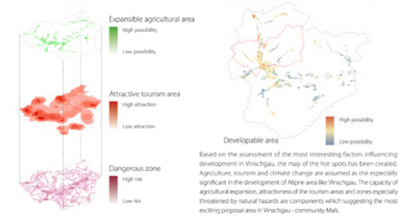


- Prevention of avlanches by placing metal structures to keep snow in its place
- Hazard prevention architecture
- Lower parks with function of collecting overload of water
- metal mesh structure in combination with planting to keep ground together
- Develop technology of forecasts and natural hazards alarming system
- Mesh to catsh falling stones and to keep stones from falling
- Organize water helicopter system to extinguish forest fire

LAYERED FUTURE : Concept

Weihenstephan-Triesdorf University of Applied Science
International Master of Landscape Architecture
Main Project 1
Akira Iguro, Arber Krasniqi, Julian Kerremans, Mirella Rebaia

Hot Spot



Based on the assessment of the most interesting factors influencing development in Vinschgau, the map of the hot spots has been created. Agriculture, tourism and climate change are assumed as the especially significant in the development of Alpine area like Vinschgau. The capacity of agricultural expansion, attractiveness of the tourism areas and zones especially threatened by natural hazards are components which suggesting the most exciting proposal area in Vinschgau - community Mals.

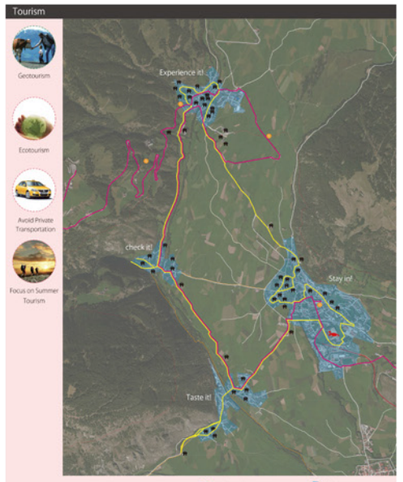
Mals

Mals, located in the northwest of Vinschgau, is the second largest municipality in South Tyrol with an area of 24.7 hectares. The elevations reach from 921 meters above sea level to 3,738 on the highest peak. The area is characterized with agricultural land use changes due to market-orientation and technological advances. However, more than half of the inhabitants of Mals are active in the agricultural sector as a second source of income. Tourism nowadays has a crucial importance in the economic sector because it is an indispensable source of income. The most beneficial branches from tourism are gastronomy sectors, but there is a possibility of future linkage of agriculture, ecology and tourism for touristic purposes.

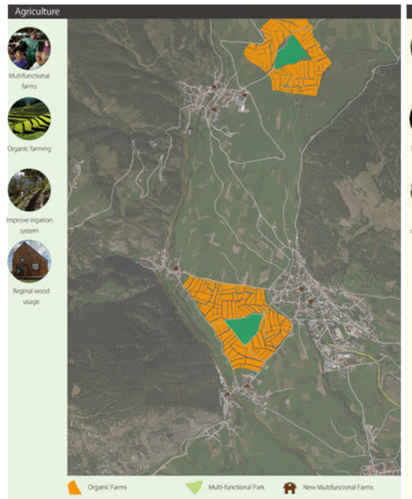
The suiteable area for future development

Thematic Concept

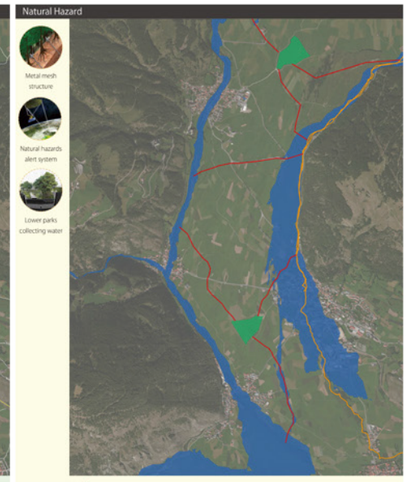
Tourism



Agriculture

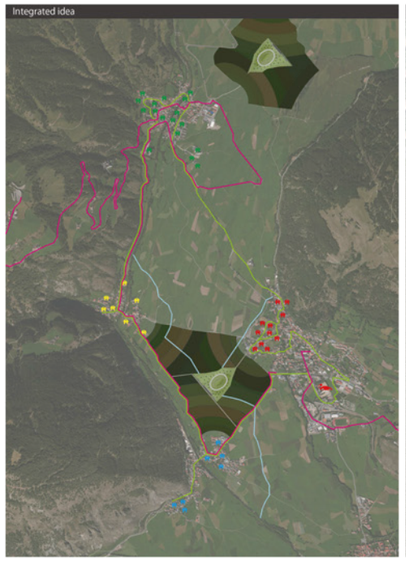


Natural Hazard

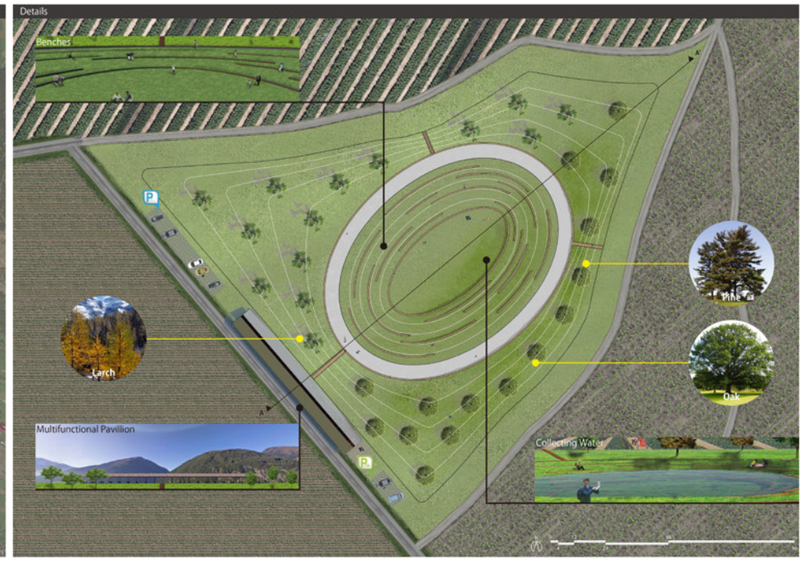


Concept

Integrated idea



Details



Space image

CONNECT ARHNTAL!

The autonomous province of South Tyrol is located in the north of Italy. This area can be seen as one of the most sustainable regions in Europe. To indentify the strengths, values, but also weaknesses, the so-called SWOT analysis was used. The DPSIR analysis gave a more detailed insight into the land, culture, economy, history. Together with a spatial analysis, we found out that Ahrntal in the north east of South Tyrol has the worst accessibility. The landuse of the area showed a difference between the southern and the northern part of Ahrntal. The more wide valley from Bruneck to Sand in Taufers has room for agriculure which have a lack of green infrastructure elements. The V-shaped valley from Sand in Taufers up to the north near Luttach has no place for crop fields, but only for meadows. Again this landscape could be made more diverse in a way, that not only tourists, but also locals can enjoy and benefit from it.

To achieve our improvement of connection, **three scenarios** were created. **The first one** specializes in the connection of the landscape. Green connections consist of autochthonous trees and hedges along the roads that connect several villages, create eco-corridors or connect habitats, which are now fragmented at multiple places in the valley. Agroforestry can be used for energy production (coppice of tree-hedges) and alimentary production (agriculture). Another source of renewable energy is the coppice of woodland.

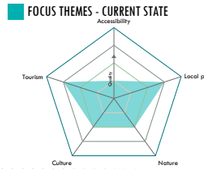
The second scenario will improve public transportation system and introduces new, more sustainable connections. The former Tauferer Bahn will be reactivated and extended to the end of Ahrntal. This connection would help to decrease private traffic, which is currently a main means of transportation in Pustertal. In many towns new car-free, pedestrian zones are planned. All the new train stations would create a well-planned network with hiking and cycling paths and information points. **The last scenario** focuses on the connectivity of activities and businesses both physically and virtually, with the focus on culture, heritage and alternative tourism. For local development, this scenario addresses the problem of the big number of small businesses and works as an extension to the Südtirol brand. It helps connecting individuals with certain sets of skills or experiences with these businesses or helps them set up their own business. The touristic aspect provides themed tourism opportunities for people who are interested in adventure, leisure, heritage, wellness. The Connect Ahrntal Mobile Application will bring the experience of tourists to the maximum.

A finaly map with the best elements of the three secenarios were implementend around the city of Sand in Taufers. All these interventions e.g. a new railway, car-free centre of the city, opportunities for renewable energy, new hike and path bikes are connecting the people and the landscape with eacht other in a way that both will have profit in a sustainable way. ■

LOCATION

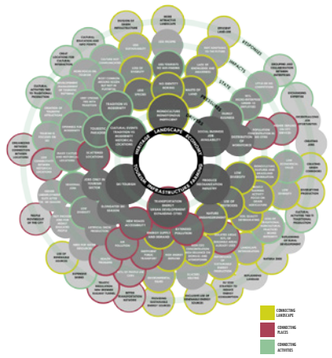
The autonomous province of South Tyrol is located in the north of Italy. It is 7,400 km² big and has a total population of 511,750 inhabitants. In summer people go for hiking e.g. in the nature parks or the Stilfserjoch National Park. Old cities as Bozen, Meran, Bruneck are popular with their castles and rich history. Ski tourism e.g. Kronplatz is also very well known in South Tyrol. With the dolomites, the autonomous province has a UNESCO World Heritage Site. A lot of unique places combined with the fact, that it is one of the most sustainable regions of the whole Europe makes this a very interesting area to discover.

FOCUS THEMES - CURRENT STATE

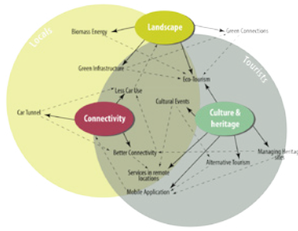


SWOT

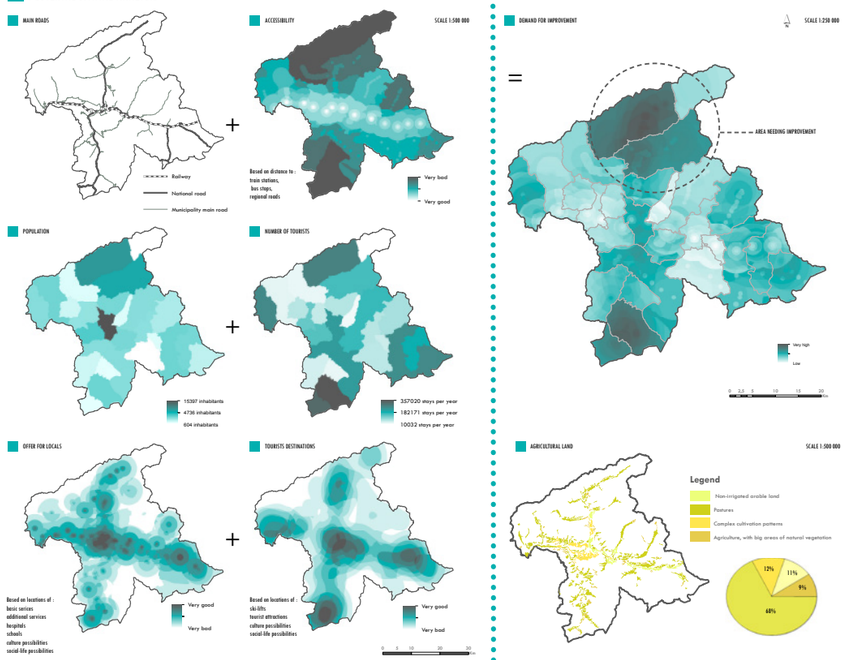
DPSIR ANALYSIS



FOCUS THEMES



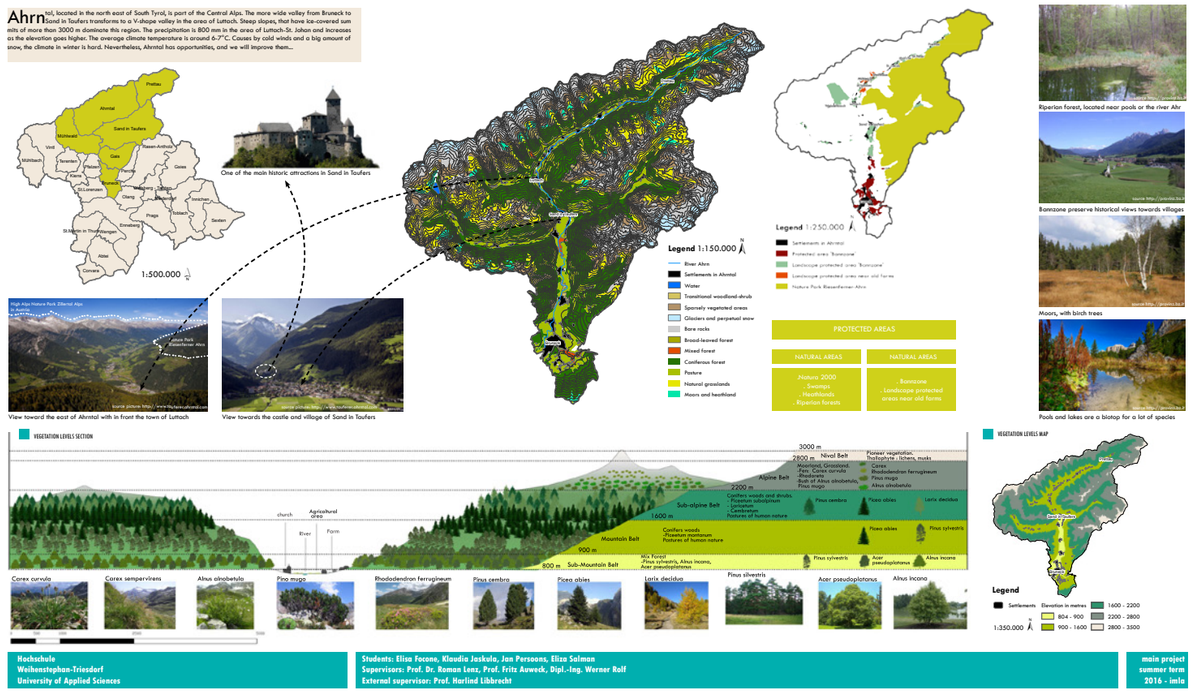
PUSTERTAL SPATIAL ANALYSIS



ARHNTAL SPATIAL ANALYSIS

LANDUSE

PROTECTED AREAS



VEGETATION LEVELS SECTION

VEGETATION LEVELS MAP

Hochschule
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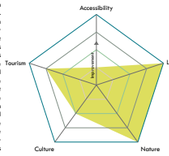
Supervisors: Prof. Dr. Roman Lenz, Prof. Fritz Auweck, Dipl.-Ing. Werner Rolf
External supervisor: Prof. Harlind Libbrecht

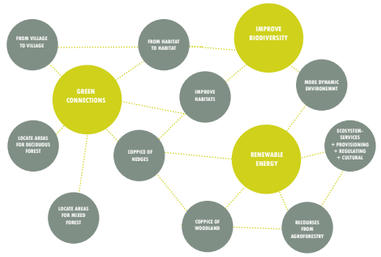
main project
summer term
2016 - imla

GREENPROVEMENT!

The valley of Ahrntal is very mono tonous. Near the south of Sand in Taufers, where the valley is much wider, agriculture can be found. More to the north pastures dominates the landscape. There is also a lack of green infrastructure that connects both hillsides of the valley where vegetation is still available. These elements were important to improve the present landscape and environmental conditions of the region. Green connections consist of autochthonous trees and hedges along the roads that connect several villages, create ecologic corridors or connect habitats, which are now fragmented at multiple places in the valley. Biodiversity improves monoculture through agroforestry. By combining tree lines and agriculture, it is possible to obtain a greater production in crops and also have simultaneously harvest of fruit- or chestnut trees. Agroforestry can also be used for energy production (coppice of tree-hedges) and alimentary production (agriculture). Another source of renewable energy is the coppice of woodland. The wood chips, that are dried in a biomass plant, are transported to the city where they provided the public places from energy. All these interventions will create new jobs, new possibilities for the people and create new green connections in the landscape.

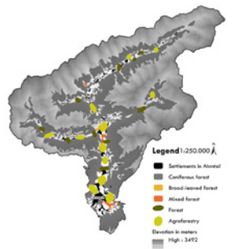


MAIN AIMS

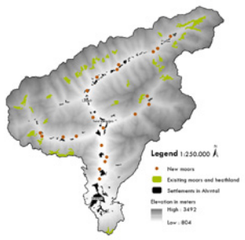


MEASURES

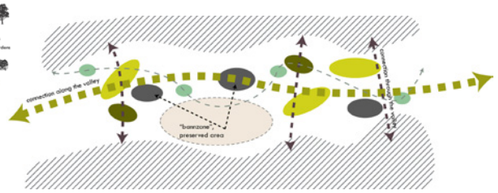
DEVELOPMENT OF FOREST



DEVELOPMENT OF MOORS AND POOLS

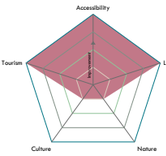


DEVELOPMENT OF HEDGES AND WOODLAND

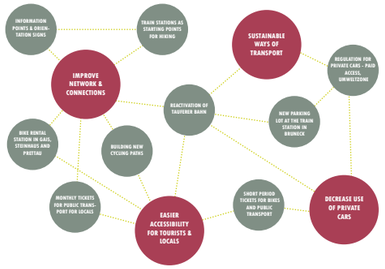


STAY CONNECTED!

The main aim of this scenario is to improve the **accessibility** of the whole Tauferer Ahrntal, by improving public transportation system and introducing new, more **sustainable** connections. It would be achieved by re-activating former Tauferer Bahn, which was operating from Bruneck in Sand in Taufers between 1908 and 1957. The train would be, like in the past, powered by a local electricity power plant on the river Ahr. The rail-way would be extended to the end of Ahrntal, connecting the **ski-resorts** of Speikboden Klausberg and Nature Park Haus in Kasern. This connection would help to decrease a private traffic, which is currently a main mean of transportation in Puterral. In main towns there are new **car-free**, pedestrian zones planned. All the new train station would create a well-planned network with hiking and cycling paths and information points, which would enable to discover the whole area without a car. Additionally a network of new cycling paths and bike rental stations would be implemented. The new infrastructure would improve both the situation of tourists and the quality of life for local people.

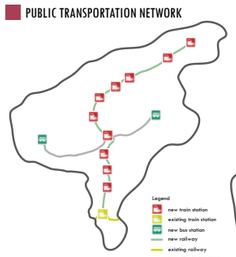


MAIN AIMS

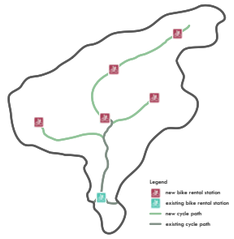


MEASURES

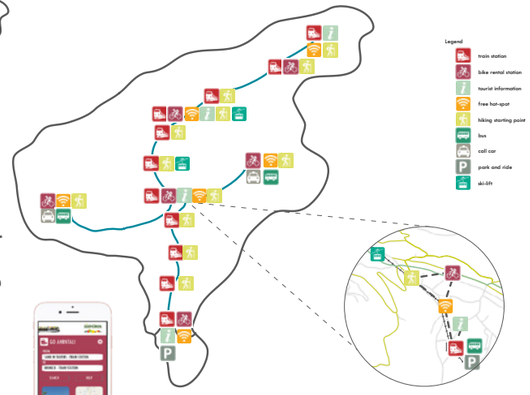
PUBLIC TRANSPORTATION NETWORK



CYCLING NETWORK

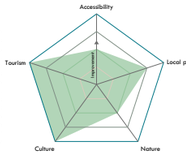


SCENARIO MAP



ALTERNATIVE ADVENTURE!

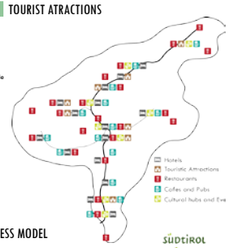
This scenario focuses on the connectivity of activities and businesses both physical and virtual, with the focus on culture, heritage and alternative tourism. For local development, this scenario addresses the problem of the big number of small businesses; it works as an extension to the Südtirol brand, it groups together similar (small size) businesses, it supports them, and provides marketing services. On the other hand, it helps connect individuals with certain sets of skills or experiences with these businesses or helps them set up their own business. For the touristic aspect, the scenario provides themed tourism opportunities for different kinds of people with different preferences, for example wellness route for individuals looking for experiences to improve their health and state of being. For those who are interested in experiencing the South-Tyrolean way of life, it offers experiences with local traditional production tours, living in a farm and so on. Similarly, this scenario provides outdoor adventure and sport routes for active tourists, culture and heritage routes for those who are interested in visiting ruins and castles, authentic food and delicacies routes for those who are interested in trying authentic dishes and products. All of this will also be managed within Connect Ahrntal Mobile Application that will bring the experience of tourists to the maximum, with easy access and all of the potential options right in their hands.



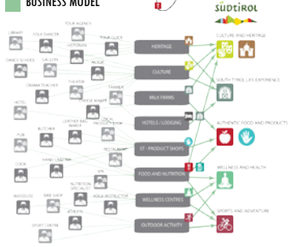
MAIN AIMS

MEASURES

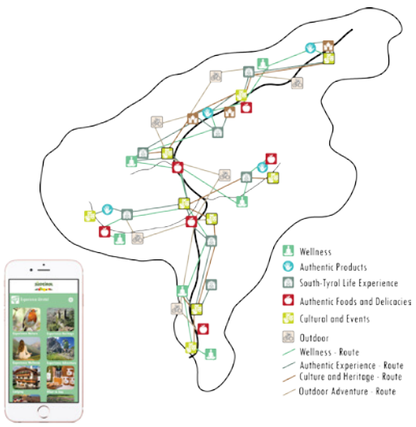
TOURIST ATRACTIONS



BUSINESS MODEL



SCENARIO MAP



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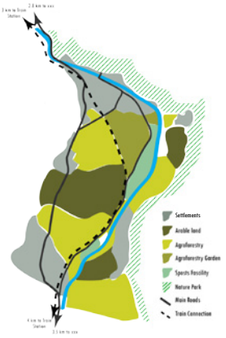
main project summer term 2016 - imla

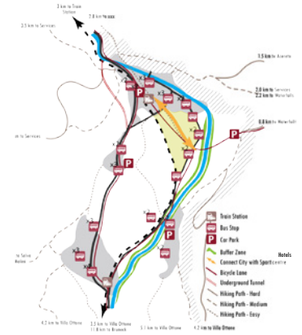
LOCATION

Sand in Taufers is one of the biggest cities of Ahrntal with the castle as the best know touristic place and landmark of that area. The surrounding landscape with its agriculture is very monotonous. New green infrastructure will improve the quality of the land and make it more attractive for locals and tourists. It will be possible to come to the city by the new railway line Bruneck-Sand in Taufers. From the central station, people can discover the surrounding landscape with different tours. The ecotour shows the benefits of the new green infrastructure in the valley. The culture and heritage tour gives opportunities for wellness, restaurants and authentic products and discover this connected landscape.

LANDSCAPE CONCEPT



CONNECTIVITY CONCEPT

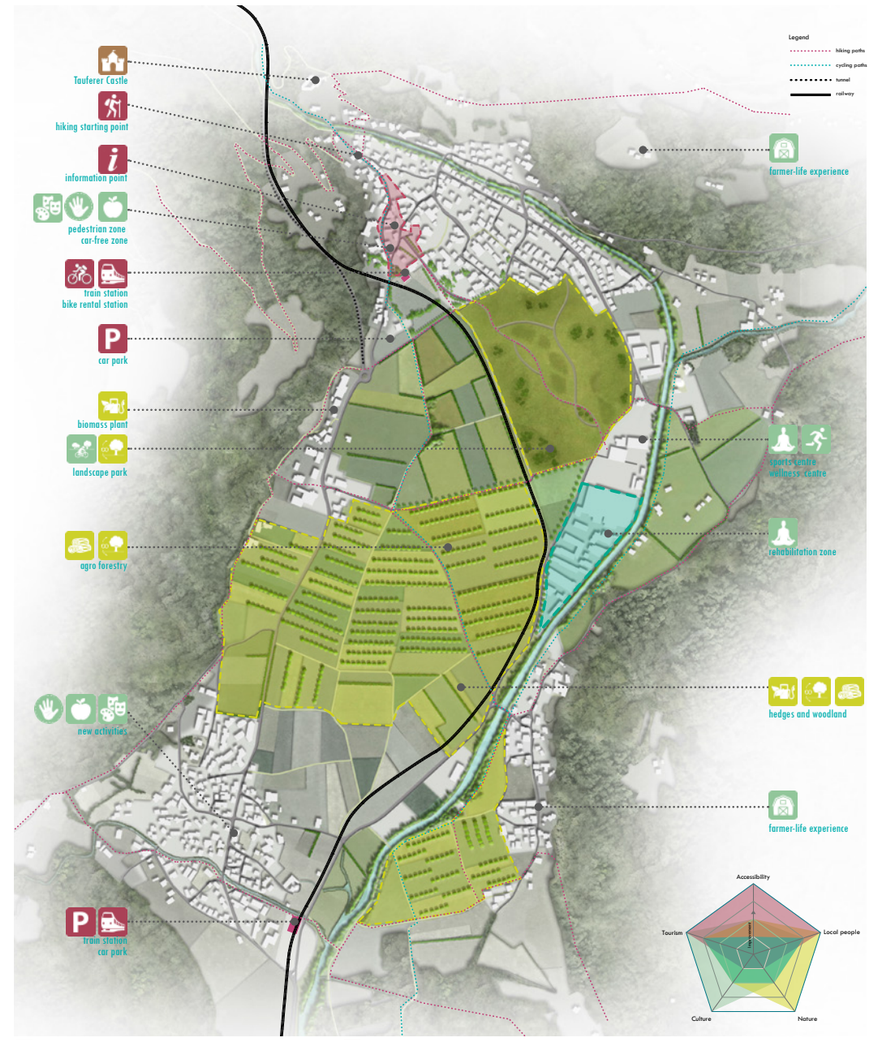


ACTIVITIES CONCEPT

CONNECT ARHNTAL APPLICATION

DETAIL MAP

SCALE 1:5000



LANDSCAPE PARK

PEDESTRIAN ZONE

AGROFORESTRY

1. Trees e.g. Acer pseudoplatanus, Alnus, Populus tremula, Salix, Quercus robur, Castanea sativa, Juglans regia are possible trees for agroforestry.
2. Harvest of grain will reinforce the local economy and culture.
3. Trees create a local micro climate, create better soil conditions and prevent land slides and erosion.
4. Hedges are important for the biodiversity of species. The coppice of hedges can be used as a source for renewable energy.
5. Small paths through the fields are safer than going along the main roads. These tracks are also more attractive and are possible for people.
6. It is important to make locals and tourists aware of the changes in the landscape and why they're made.
7. Woodland can be cut in phase, so that the landscape will be more diverse and attractive. The coppice can also be used for renewable energy
8. Silvopasture is the combination of trees and meadows where the cattle can graze. The trees give protection and shadow for the animals.
9. The trees are an extra income for farmers. Fruits, chestnuts and, in a later phase, timber for furniture are possibilities. Depending which trees and how fast they grow, they can be replant in 20-40 years and make the landscape again more diverse.

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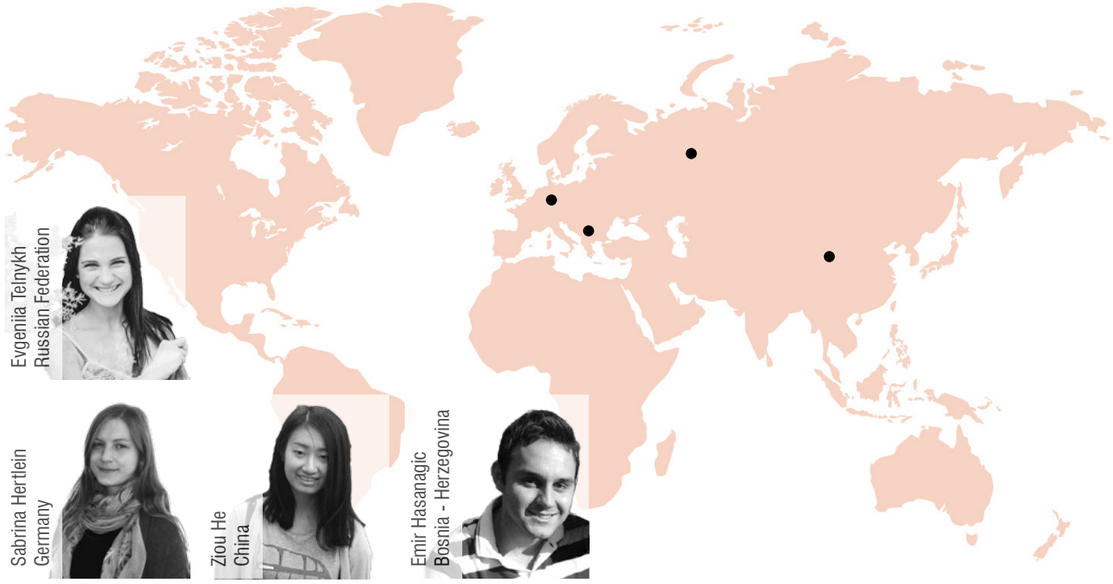
#NEW FARM OLD CHARM

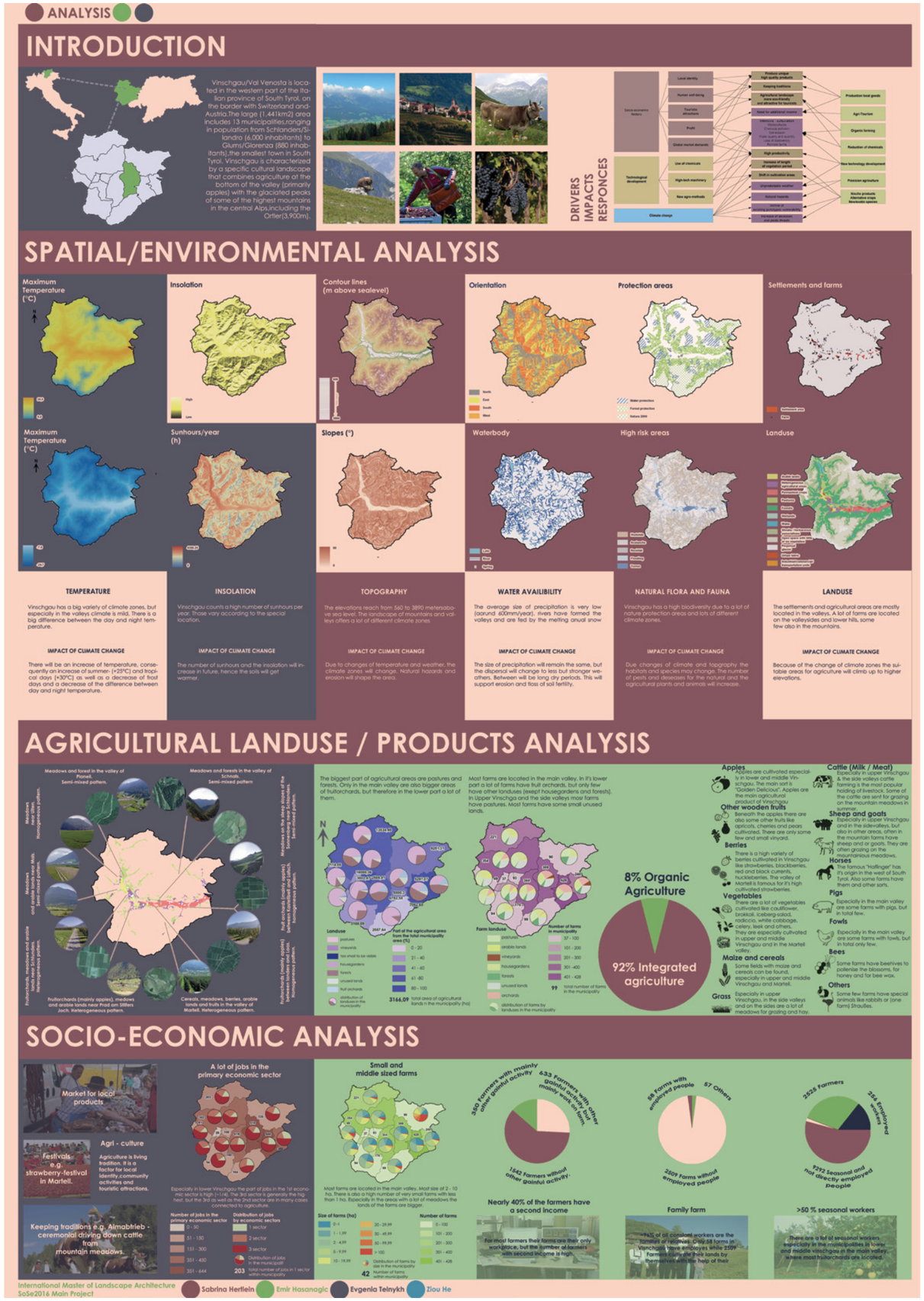


After a site observation our first impression was that Vinschgau is characterized by a specific cultural landscape that combines intensive agriculture at the bottom of the valleys, extensive agriculture on the hillsides and nearly untouched areas e.g. the glaciated peaks of some of the highest mountains in the central Alps. Vinschgau's landscape is shaped by agriculture and it's local products are popular. Besides agriculture is an important economic sector in the area. Altogether one might say agriculture has a high value in the area, economic and social. Therefore, we focused our task on this topic.

In order to find suitable areas for agricultural lands, we analyzed the environmental conditions and how they will change due to the climate change. Besides we figured out what kind of crops and livestock are most popular in Vinschgau and how the situation of agricultural land use is nowadays. We found out that the main landuse in Vinschgau is the cattle and greenland farming. In the main valley in lower Vinschgau the cultivation of apples, mostly in monocultures is very popular. The main method of cultivation in Vinschgau is the integrated agriculture, only few farms do organic farming. In addition, we analyzed social-economic factors, which lead us to the conclusion that most farms are small sized family businesses and that a lot of farmers need another job. Hence our challenge was also to help them to provide more chances for a second or higher income. With the help of an DIR analysis we defined our main responses: Production of local goods, agri-tourism, organic farming, alternative crops, precision agriculture and new technologies development. We developed **two contrary scenarios:** „#Organic philosophy" and „#Intensive".

#Organic philosophy: In our first scenario we envisioned how Vinschgau could look like in the future if all agriculture would change to organic farming. The goal of this attempt is to improve especially the environmental conditions, the attractivity and health of the landscape, the products and hence also human wellbeing. **#Intensive:** For our second scenario we imagined how Vinschgau could look like in the future if all agriculture would be done with the conventional methods. The base of this scenario is that the farmers should be able to live only from agriculture and have a high productivity, which they reach by intensive farming using the conventional (not ecofriendly) methods and all possibilities to increase the production. In this scenario also the development of new technologies plays a big role. Our conclusion from the scenarios was that organic farming is the most sustainable cultivation method; hence our goal is to increase this. From scenario two we appreciated the idea of developing new technologies to improve the production.

In our future Vinschgau agriculture will keep the high value it already has today, but will be improved for sustainability, environmental, economic and social.



1 SCENARIO #ORGANIC PHILOSOPHY

what?

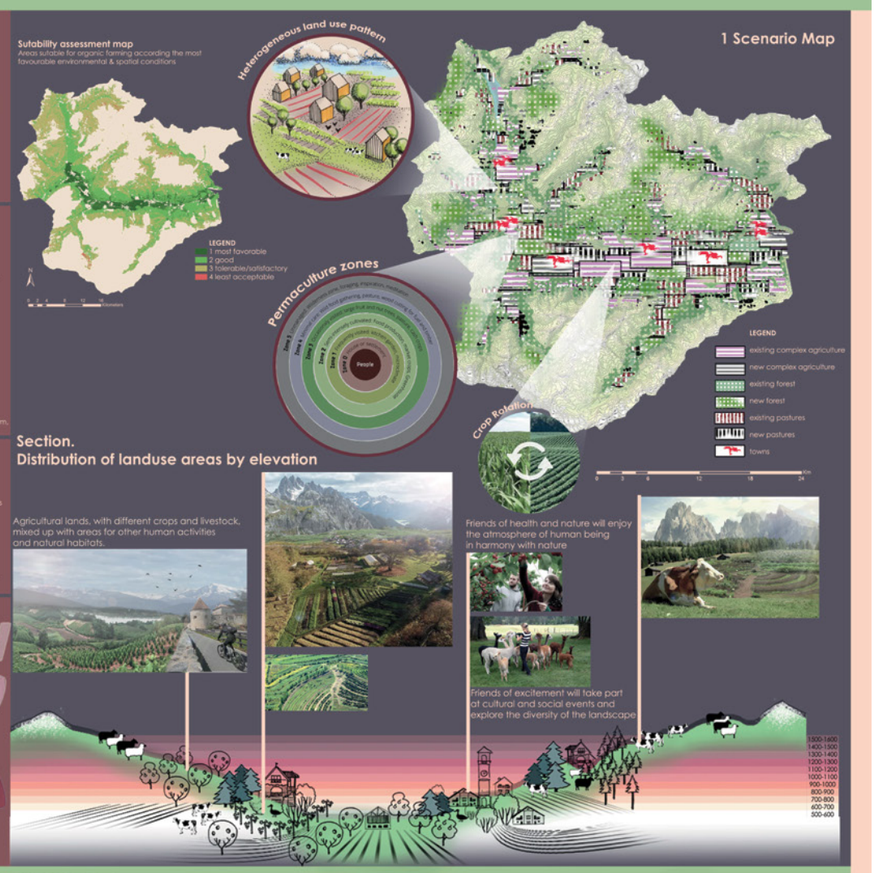
how?

1. Change cultivation methods to 100% organic
PRINCIPLES
→ priority on prevention instead of fighting
→ working in the natural circle
→ soft and saving treatment of the resources
GOALS
→ for plants: no use of synthetic chemical fertilizers, herbicides, pesticides, fungicides & healthy seeds
→ for soil: special mechanical treatment & only organic fertilizers
→ for animals: organic food & more space
→ for biodiversity: no monocultures
2. Integrate alternative and approved cultivation methods
→ permaculture
→ crop rotation
3. Adapt to climate change
PRINCIPLE
→ soften and use it's impacts
GOALS
→ cultivars adapted to changing environmental conditions
→ regional appropriate crops & animals
→ using alternative crops
4. Mix agricultural business with tourism – agri-tourism
→ offer special activities (holidays on the farm, organic farming courses etc.)
→ offer special products (home made products etc.)
→ mix with gastronomy and accommodation (holidays on the farm, catering on the farm etc.)

why?

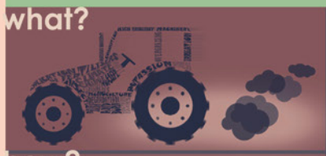
→ nature & resource protection
→ healthy environment – healthy human
→ attractiveness of the landscape (for inhabitants and tourists)
→ habitats for biodiversity of natural flora and fauna
→ improve living conditions of livestock
→ produce high quality & unique products in higher prices to increase farmers income
→ demand on more workers increases local employment & keeps rural population
→ increase local identity by having high quality landscape and products & common philosophy
→ keep & protect small family farms
→ save harvest- save farmers income
→ increase and security of farmers income
→ 2nd income related to the agricultural business
→ save traditions and regional specialities
→ support synergy effects with other touristic businesses – support local economy

effects?



2 SCENARIO #INTENSIVE

what?



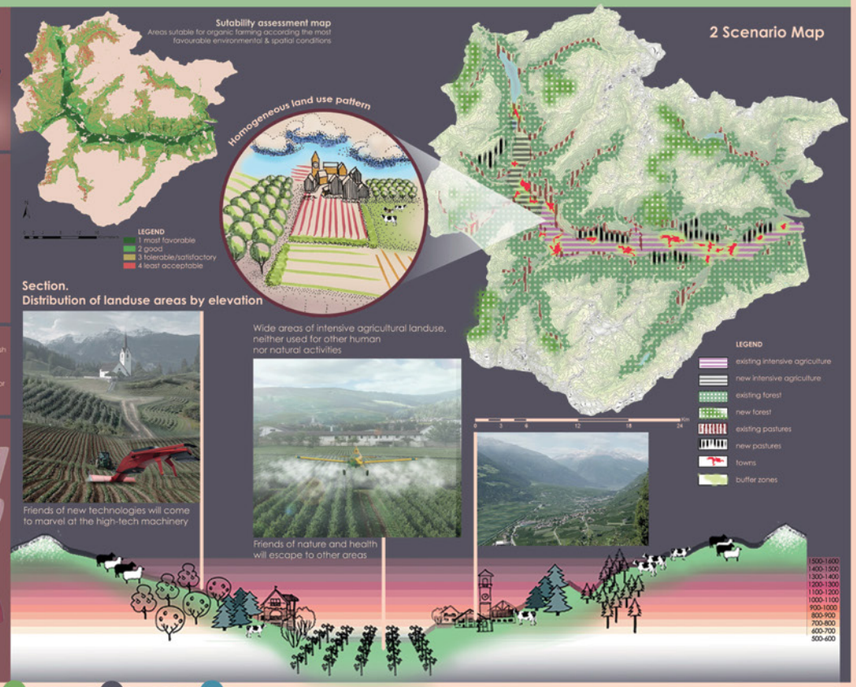
how?

1. intensive agriculture
PRINCIPLES
→ farmers are only farmers
→ use all possibilities to increase productivity
→ support and develop new technologies for agriculture
GOALS
→ use of chemical synthetic fertilizers, herbicides, pesticides, fungicides
→ use new technologies
→ no restrictions for nature protection issues on agricultural lands
→ use all suitable lands
→ agricultural areas only for agriculture
→ high performance species
2. Adapt to climate change
PRINCIPLE
→ soften and use it's impacts
GOALS
→ suitable species for changing environmental conditions

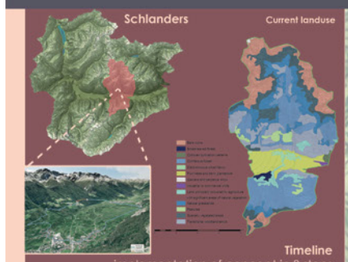
why?

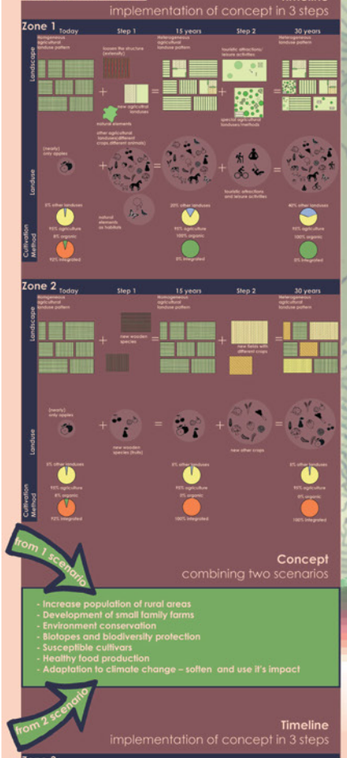
→ farmers can concentrate on agriculture
→ increase production for 70% - increase income of farmers & diminish need for 2nd income
→ security of harvest - security of farmers income
→ Increase export to take part on the world market
→ support and benefit from technical development – driving force for the advance

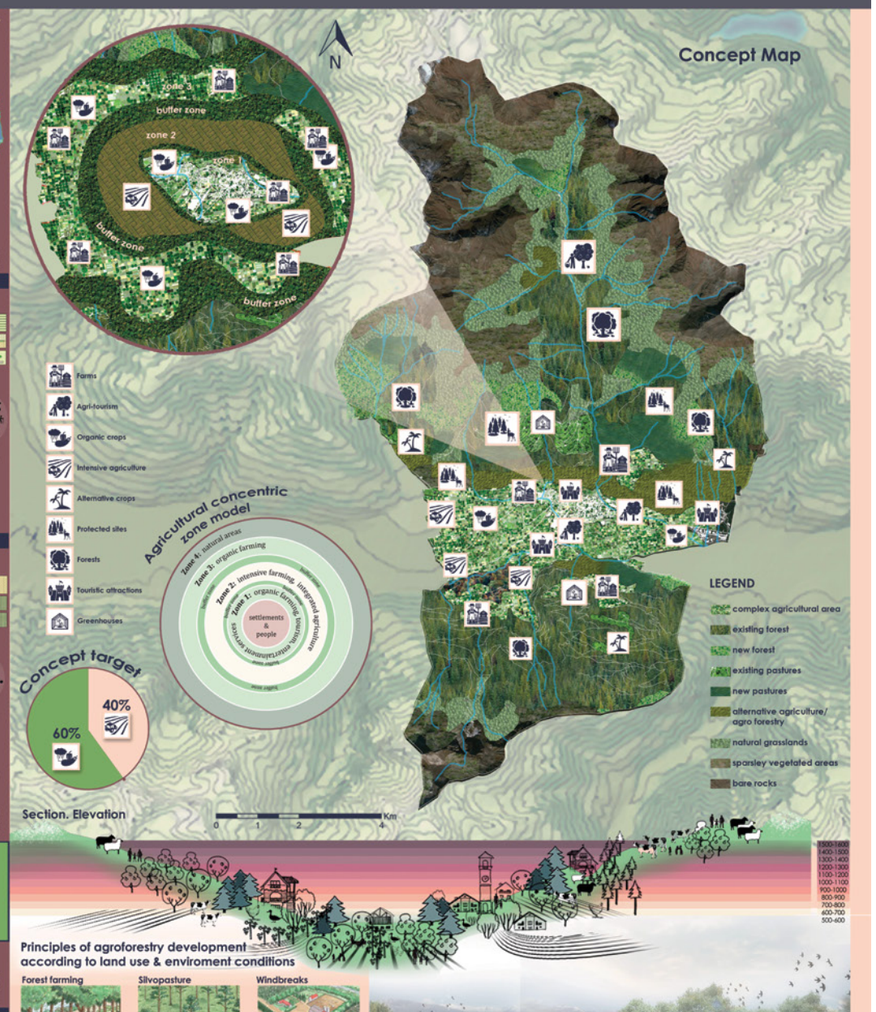
effects?



CONCEPT #NEW FARM OLD CHARM







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