Sustainability Hub Zurich (SHZ)

Draft Project Profile

AGS Side Event, January 29, 2009
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Why a Sustainability Hub in Switzerland?

Favorable Market Environment:

- Growing international demand for sustainability related goods and services due to climate change related pressures (trend observation)
- Companies in need to tackle sustainability-related problem-sets (reducing their waste and emissions etc.) and look for specific solutions
- Sustainability therefore a highly attractive topic to influence companies’ location related decisions
- Reinforced fact as many firms keen to associate with sustainability-related projects and partners in order to benefit on the PR front (HR relevant)
- Market environment for attracting companies is most attractive if specific sustainability-advantages of a location can also be offered
Why a Sustainability Hub in Switzerland?

A Swiss Hub for Sustainability:

• No centre, research or industrial park with an explicit sustainability focus currently exists in Switzerland (green/clean reputation as favorable asset)

• Approx. 40% of world energy is used for buildings, giving the opportunity to test new technologies and thereby setting benchmarks in the local and international market (→ impact of urban planning on energy consumption patterns)

• Few other research or industry hubs with a specific sustainability focus currently exist anywhere, yet there is high demand for a hub (based on Masdar experience about demand for sustainability hubs)

• Many international organizations linked to sustainability are headquartered in Switzerland (e.g. IPCC, WWF etc.) – an opportunity to maximize a hub’s effect
Why a Sustainability Hub in Switzerland?

Conclusion:

• Combination of a favorable market and Swiss appropriateness indicate a strong case for a sustainability hub (with specific thematic focus and development concept)

• Given the sizable issues at stake, as well as emerging global competition, this should include a top site, considerable scale, and be implemented in a reasonable time frame
Site Considerations

Identified Key Tenant Needs:

- **Talent** (local availability and sustainability awareness)

- **Spatial Flexibility** (all types of spatial usage available)

- **Energy & Logistics** (facilities and locations that minimize energy consumption)

- **Connectivity** (sound international and regional connectivity)

- **Security & Regulatory Environment** (tax, administrative efficiency and intellectual property protection)
Site Considerations

Favorable Site Conditions in Dübendorf:

• **Talent** -> High living quality index (Zurich), high Swiss work ethics, high university performance, high sustainability performance, “Energiestadt Dübendorf” awarded, Glattal Region

• **Spatial Flexibility** -> Suitable Size (265ha) for international recognition and closeness to Zurich airport, downtown

• **Energy & Logistics** -> Project-based energy solutions needed, logistical preconditions favorable

• **Connectivity** -> well connected to public and private transport with extension options

• **Security & Regulatory Environment** -> well established in Zurich/Switzerland
Current Planning and Stakeholder Situation:

- Site owner: Swiss Confederation, Guidelines given in Sector Plan of the army a.o. national plans

- Cantonal and Regional Guiding/Structure Plans define settlement and not-settlement areas, as well as prime agricultural and nature protection areas

- Site under constituency of 3 communes – Dübendorf (main), Wangen-Brüttisellen and Volketswil – each with own land use and zoning regulations
Site Considerations

Current Planning and Stakeholder Situation:

• Swiss Army shall stop flight activities in Dübendorf by 2014

• Canton of Zurich is finalizing a test planning process, which assesses different future land use alternatives after 2014

• Cantonal guiding/structure plan assigns Glattal Region and involved communes to prepare basic studies (transport, noise assessment etc.) for a new development in case military activities will be ceased after 2014

• Other development studies ongoing (SFS etc.)
Site Considerations

Current Planning and Stakeholder Situation:

- Report “Development Scenarios for Dübendorf Airport” (issued by government of Dübendorf in 2002, in close collaboration with neighboring communes and other relevant stakeholders of federal and cantonal administration etc.):
  - Sustainable spatial development of the area (max. 1/3 built-up)
  - Consider use of development potentials in existing settlement areas
  - Future use of airport area without causing high infrastructure costs
  - Public transport ring line for Light Rail Transit (LRT) necessary
  - Future residential areas well connected to existing ones, no independent district
  - Keep agricultural and nature protection use
  - No intensive use of the area for working and living

Source: Schlussbericht “Entwicklungsszenarien für den Flugplatz Dübendorf”
Site Considerations

Current Stakeholders on Site:

- Air Force (helicopter and air freighter)
- Air Operation Centre (AOC)
- Skyguide Air Navigation Center Zurich (ANZ)
- Swiss Air Rescue Unit (REGA)
- RUAG Electronics (branch)
- Ju-Air (sightseeing flight services, Junkers 52)
- Air Force Center / Flight Museum
- Solar Impulse (solar airplane of Bertrand Piccard)
- Public Events (concerts, sport events etc.)
Site Considerations

Need for Stakeholder Analysis:

1. Identification of Stakeholders:
Site Considerations

Need for Stakeholder Analysis:

2. Classification of Stakeholders:
   - Participation
   - Degree of concernment
   - Power/impact
   - Interest
   - Conflict potential
Proposed Hub Development Concept

Development Strategy: Main Goals

1. Sustainability – Life Cycle

- Zero carbon balance
- 100% renewable energy based
- Close to zero waste output

Source: www.burdensevironmental.com
# Proposed Hub Development Concept

## Development Strategy: Main Goals

1. **Sustainability – Focus Areas**

<table>
<thead>
<tr>
<th>No.</th>
<th>Theme</th>
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<td>E2</td>
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<td>E5</td>
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<td>F5</td>
<td>Generation - Biomass</td>
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<td>F6</td>
<td>Generation - Other REN</td>
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<td>F7</td>
<td>Generation - Fossil</td>
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<td>Storage</td>
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<td>F10</td>
<td>Carbon Management</td>
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</table>

Source: FFGS – Focus Areas & Activities
Proposed Hub Development Concept

Development Strategy: Main Goals

2. **Quality – Functionality:**

- Outstanding quality in planning, design and finishing
- Precise functionality (access, master plan layout, interior layout etc.)
- SHZ positioned as reference sustainability project with strong multiplier effect
- Sustainability performance and focus as major marketing strength
Proposed Hub Development Concept

Development Strategy: Main Goals

3. Local/Regional Integration
   - Close integration to surroundings (business, industry, residential, nature and leisure)
   - Significant contribution to overall living quality in commune and surrounding region
Proposed Hub Development Concept

Development Scale and Density:

- Large scale and phased development to reach critical mass for research, pilot manufacturing, residential activities and nature (approx. 50% developed)
- Delineation of developed and undeveloped areas following current urban pattern
- Dense development (space availability, profitability, transportation efficiency and nature compensation)

Source: Google Earth, Maxmakers

Source: Nick Beglinger
Proposed Hub Development Concept

Mobility – Transportation:

• Entire SHZ area car-free
• Park + Ride system (P+R)
• Light Rail Transit ring line (LRT -> “Glattalbahn”)
• Personal Rail Transport system (PRT)
Proposed Hub Development Concept

Land Use:

- Mixed main development zone with radial allocation of SSI Academy, commercial and residential zones, enriched with green core strips
- Nature zone connecting the northern and southern “undeveloped” areas and contributing to an upgrade of the local ecological network
Proposed Hub Development Concept

Main Development Zone Components:

- SSI Academy (1) – university type campus at the core of the development
- Commercial research facilities (2) – research labs and offices around SSI Academy, key for fostering innovation
- Hotel and conference center
- Commercial business park (3) – modern office building with central community areas
- Light manufacturing industry park (4) – linked to offices/labs, focus on light assembly and clean manufacturing with medium/high value-added output
- Residential facilities (5) – allowing for professional as well as social interaction, linked to adjacent-existing settlement and nature areas
- Selected catering and retail – micro-centers throughout the site
- Interactive science center to foster sustainability awareness

Source: Google Earth, Maxmakers
Proposed Hub Development Concept

Existing Facilities and Aviation:

- Development shall seek to reflect the history and the natural environment of the site
- Main existing aviation facilities shall be integrated as much as possible into the overall site plan (aviation museum, Skyguide, REGA, Officers’ training facilities)
- Feasibility of aviation-related economic activity needs more thorough analysis
- Consideration of aviation- and sustainability-related research topics (e.g. Solar Impulse)
- Economic link-up with Zurich Airport fostered in terms of on-site R&D activities of firms located at both airports
- Other existing aviation facilities (roads, runways etc.) will be assessed and where possible integrated into the overall master plan

Source: http://aviapix.ch
Proposed Hub Development Concept

Energy Supply:

- Performance target – 100% based on renewable energy sources
- Sustainable urban planning, energy efficient construction, prioritization of public transport etc.
- Use of energy generation in the production, waste and recycling process
- Technical and legal facilities for dynamic grid connection, able to generate alternative energy onsite and off-site
- Geothermal (e.g. HDR), solar and bio sources will likely play a role in on-site generation
- Wind and solar as attractive off-site energy sources
- Available grid for energy „storage“ to provide surrounding communities with renewable power
Proposed Hub Development Concept

Water and Waste:

• Water plays an important role on this site, given its ground water reservoirs with multiple existing wells/sources.
• Water purification and recycling shall receive considerable attention at SHZ.
• Water as important element in landscape planning – opening of small streams to be evaluated.
• Waste also to be regarded as key sustainability issue in terms of generation, recycling and disposal.
• SHZ shall become a model for household and industry waste management (input-output waste concept as industry selection criteria).
• For energy generation and for resource inputs, SHZ may process waste from surrounding communities.

Source: Swisstopo 2007
Source: Stadt Dübendorf
Source: en.wikipedia
Source: www.facops.wsu.edu
Proposed Hub Development Concept

SHZ Business Model & Operations:

- Federal Government assigns development site to SSI
- SSI has extended its board with relevant stakeholders from involved communes a.o.
- SSI sets up SHZ Development AG, a Zurich-based company, acting as master developer, operator and owner of the site (assigned by SSI)
- Federal Government and SSI seed finance SHZ for initial studies and planning works
- SHZ acts as “de-facto municipality” for building permits and domicile-related issues
- SHZ controls the project master plan, finances and builds site infrastructure (with government development support), and specifies construction guidelines
- Special Purpose Vehicles (SPVs) for co-funding of infrastructure type investments
Conclusions – Next Steps

Feasibility Conclusion:

- SHZ shows attractive project properties – also compared with the Masdar project
- SHZ excels on location factors and talent, and is likely also more attractive regarding the availability of a local market for sustainability related products and services (need for future tenants)
- Term of implementation and related government support are certainly the most critical factors due to the complex planning preconditions, uncertainty and stakeholder situation
- Public benefits with regard to political positioning and macro-economic benefits (long-term competitiveness, employment, multiplier effects etc.) will certainly contribute to facilitate the implementation process

<table>
<thead>
<tr>
<th>Factor</th>
<th>Abu Dhabi</th>
<th>Zurich</th>
<th>Importance Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Location: Access</td>
<td>+</td>
<td>+</td>
<td>10% 10%</td>
</tr>
<tr>
<td>2. Location: Political Stability</td>
<td>+/-</td>
<td>++</td>
<td>10% 10%</td>
</tr>
<tr>
<td>3. Location/Climate</td>
<td>-</td>
<td>+</td>
<td>10% 10%</td>
</tr>
<tr>
<td>4. Market</td>
<td>+/-</td>
<td>+/-</td>
<td>20% 30%</td>
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<tr>
<td>5. Execution Speed, Government Support</td>
<td>++</td>
<td>+/-</td>
<td>40% 10%</td>
</tr>
<tr>
<td>6. Talent (Biz, Academic)</td>
<td>+/-</td>
<td>++</td>
<td>10% 40%</td>
</tr>
</tbody>
</table>

Source: Maxmakers
Conclusions – Next Steps

Next Steps:

• Invite more relevant stakeholders from government, administration, industry and organizations to further develop and implement the SSI project on sustainability hubs (selection based on stakeholder analysis results)

• Nation-wide location assessment study for possible sustainability hub sites (multi-hub-strategy, based on “negative/positive” planning approach)
THANK YOU FOR YOUR ATTENTION!