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Regional Networks for the development of a Sustainable Market for
Bioenergy in Europe



Report on the “Best Practice” Visit in Achentel

Acknowledgements

This report has been produced as part of the project BioRegions. The logos of the partners cooperating in this project are shown below and more information about them and the project is available on www.bioregions.eu



The work for this report has been performed by Christian Epp and Wolfgang Wimmer, Biomassehof Achental (BAT)

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Summary

From March 28 to March 30 a group of 37 individuals from 8 European countries visited the Best Practice region in Achental, Germany. The group consisted of selected stakeholders from five the BioRegion target regions and of representatives of the project consortium.

A visit programme on the innovative bio-energy structures and projects of Achental was put together by the consortium partner Biomassehof Achental along the stakeholder requirements which were analysed in the pre-visit questionnaires that were collected prior to the event.

The programme consisted of a presentation of the regional bio-energy centre run in public-private partnership and of visit on a forestry harvesting site, a small scale decentralized biogas site and a regional district heating network based on wood chips from the region. The study tour was rounded up by presentations about short rotation crops, modern forestry technologies and the experiences of "Ecomodel Achental" to combine bio-energy promotion with the regions profile as tourist destination.

The Best Practice Visit was a full success. All stakeholders gave very positive feedback in the evaluation survey for the quality of the visit and the fulfillment of their expectations.

Moreover, the very positive atmosphere during the stay under perfect spring weather conditions was used by all delegations for intense internal debates how similar structures and projects in the field of bio-energy could be implemented in their own home region. In this respect the visit profited from the intense mobilization work in all target regions which brought individuals to Achental who already are involved in the bio-energy scene in their region and are in positions to promote the further development of this sector. In all target regions the Best Practice visit was followed-up by internal meetings where the ideas and strategies towards an own bio-energy region were brought on a more concrete level.

The group was much larger than originally planned (38 instead of 18 participants). Still it was possible to stay within the tight budget schemes of BioRegions project, e.g. it was possible to organize a decent accommodation to very modest prices (50 Euro per overnight including breakfast and dinner).

The organization of the Best Practice visit was a milestone within the Achental strategies to become a dissemination region for innovative bio-energy projects in Europe, similar to the region of Güssing in Austria.)

Practical Setting

Date of arrival:	Monday morning, March 28 2011
Date of departure:	Wednesday evening, March 30 2011
Accommodation:	Regional guest house
Transport:	Bus from regional bus company
Language:	English and German with translation to national languages by consortium partners

Information material: Provided prior to the trip in English language and was translated into national languages

Pre-visit Questionnaire

A pre-visit questionnaire that was sent to all stakeholders prior to the event was used as a basis for planning the program. The questionnaire can be found in Appendix 1. Of the 38 final participants, 19 sent in a filled questionnaire. Seven (out of nine) came from Czech Republic, four (out of six) from Latvia, three (out of five) from Ireland, five (out of eight) from France and none from Bulgaria.

The main answers to question 1 (previous knowledge about bioenergy) included both involvement into local projects and organizational experience. Nobody stated to have no background knowledge.

Question 2 (participation in previous BioRegions events) was answered with Yes in 13 cases and No in 6. Question 3 (local project aim awareness) yielded a general understanding of the BioRegions project aims, but two desired to get more information on this topic. Question 4 (meaning of Achenal visit for local projects despite of region differences) showed the hope of the participants to learn dealing with challenges similar to the ones in their region and how to avoid unforeseen mistakes. Additionally, best advice is expected to come from the top-performers, and the public-private interplay was deemed important. Many also expressed desires to see special methods, e.g. wood harvesting, logistics, etc. and also interest in the region of Achenal itself. Question 5 about the preformulated expectations of the visit was answered Yes in unison, to all four subpoints. Some stakeholders explained their aspirations in detail, including many different ideas. Question 6 about additional own expectations yielded a desire for information about private forestry cooperations, costs and technical potentials, harvesting methods, public subsidies and funding, alternative tourism, common problems and how to avoid them, involvement of different partners like schools, the region of Achenal, and legal issues.

Visit Program

The detailed program is shown on page 9. No major changes to the program were necessary. In the following brief descriptions of all program items is given:

Guided tour through Bio-energy Centre

For the start all participants have got a guided tour through the Bio-energy Centre Achenal that can be seen as the heart piece of the project.



Simultaneous translation for the Czech group in the conference room of bio-energy centre.



Discussion about biomass logistics with the French group on the Bioenergy Centre under a perfect blue spring sky



Wolfgang Wimmer CEO of Bioenergy Centre explains the heat transfer stations of the district heating networks based on wood chips.



Dinner presentation

In the evening all stakeholders have got the opportunity to present their own bio-energy activities in their home region. Several regions brought typical presents from their region with them.



These individual presentations gave a good understanding about the activities for Bio-energy in Europe.

Modern forms of forestry and wood-chip production

The morning of the first day was dedicated to modern ways of forestry. Two presentations in the guest house conference room about new developments in harvest technologies and about short rotation crops were followed by an on-site visit at an on-going harvest site in the forest.



After a 30 minutes walk the group was able to watch the 350 HP engine chipping wood residues.

Small scale biogas plant and dairy production



Martin Gasteiger operator of the small scale biogas plant in Kössen explains the technology which uses all waste heat for mild and cheese production





Pellets production plant at saw mill



The largest pelletising plant in the region has developed a very innovative set-up as tourist attraction.



BEST PRACTICE VISIT ACHENTAL

	<u>Monday 28 March</u>	<u>Tuesday 29 March</u>	<u>Wednesday 30 March</u>
<u>Morning</u>	Arrival and Bus Shuttle from MUC Airport, for details see plan of arrival and departure	9.00 Start by bus from Gasthof Ott 9.30 Arrival Ruhpolding <ul style="list-style-type: none"> ○ Hiking trip „modern ways of forest cultivation“ ○ Presentation on short rotation crops 12.30 Start by bus from Ruhpolding	8:00 Start „Latvian Bus“ 9:00 Start Rest of the group 9:20 Tour in Pellets Plant Fügen in Russian language 10:20 Tour in Pellets Plant Fügen in English and French language
<u>Afternoon</u>	15:30 Welcom in Bioenergy Centre Coffee, drinks and cakes 16.00 - 17.30 <ul style="list-style-type: none"> ○ Guided tour through Bioenergy Centre 18.00 <ul style="list-style-type: none"> ○ Arrival in Gasthof Ott 18.30 <ul style="list-style-type: none"> ○ Aperitif ○ Dinner in Gashof Ott 	13.00 Uhr Ankunft Kössen <ul style="list-style-type: none"> ○ Käsebrozeit 14.00 <ul style="list-style-type: none"> ○ Besichtigung der dezentralen Biogasanlage 15.00 Start bus from Kössen 15.30 Coffee Break in Schleching Presentation Ökomodell Achental 16:30 Arrival Gasthof Ott 17:00 Project Meeting BioRegions (only for the project partners) 18:30 Dinner in Gasthof Off	Bus Shuttle to Airport, "Latvian Bus" Start at 11:30 "Large Bus" Start at 14:00
<u>Evening</u>	19.30 <ul style="list-style-type: none"> ○ Welcome by the Mayor ○ Presentation of participants 	19:30 Regional Music	 

Participation

The high ranking stakeholders from the five BioRegion target regions are compiled in the following table:

1	Bulgaria	Tsenko Tsenov	State Forestry Agency (Ministry of agriculture)
2	Bulgaria	Atanaska Naltchadjijyska	hotel owner, town of Hisarya
3	Bulgaria	Mariana Palvova	journalist - Marica newspaper
4	Czech Republic	Oldřich Kozáček	BTH Slavičín s.r.o.
5	Czech Republic	Jaroslav Končický	Slavičín municipality
6	Czech Republic	Pavel Urban	BIOPAL Technologie s.r.o.
7	Czech Republic	Jaroslav Šerý	Brumov-Bylnice municipality
8	Czech Republic	Petr Straňák	Klooboucká lesní s.r.o.
9	Czech Republic	Radek Ovesný	Klooboucká lesní s.r.o.
10	France	Aubert Frederic	Mayor of Tréminis and representant of SAT
11	France	Locatelli Brigitte	Director of SAT, Project Manager BioRegions for SAT
12	France	Marcel Calvat	President of the community of communes of Mens, owner of a public boiler
13	France	Olivier Allagnat	Wood manager and woodships producer at COFORET
14	France	Thierry Chataing	Representant of TENERRDIS program (innovation for biomass utilisations)
15	France	Laurent Descroix	National Office for public Forests (ONF) and TENERRDIS participant
16	France	Christophe Chauvin	CEMAGREF (scientific institute) and TENERRDIS participant
17	Ireland	Patrick Daly	Consultant to WCD Bioregions
18	Ireland	Vincent Nally	Irish Rural Link / WCD Board / Energy Sub Committee / Farmer
19	Ireland	Paddy Donnelly	Irish Farming Association / WCD Energy Sub Committee / Farmer
20	Ireland	Bruce Lett	Journalist - The Farming Independent
21	Latvia	Ģirts Ieleja	Head of Development Division of Limbaži municipality
22	Latvia	Aigars Legzdīņš	Mayor of Limbaži municipality
23	Latvia	Guntis Kārklīņš	Chief Architect of Salacgriva municipality
24	Latvia	Juris Zālītis	Director of Salacgriva Tourism Information Centre
25	Latvia	Mārcis Krūzenbergs	Director of company Bumpo, Ltd - wood fuel producer

The participating representatives from the BioRegions consortium can be seen in the following table:

1	Bulgaria	Vladimir Vlakov - EAP	Energy Agency of Plovdiv
2	Czech Republic	Miroslava Knotková	EAZK
3	Czech Republic	Tomáš Perutka	EAZK
4	Czech Republic	Mr. Pekárek	driver
5	France	Bettina Maeck	Technician for BioRegions project
6	Germany	Wolfgang Wimmer	CEO Bioenergy Centre Achental
7	Germany	Christian Epp	Project Manager BioRegions for BAT
8	Greece	Michael Papapetrou	Coordinator BioRegions
9	Ireland	Patrick Daly	Consultant to WCD Bioregions
10	Latvia	Ilze Dzene	Project Manager BioRegions for EKODOMA
11	Spain	Marian Cabanero	Coordinator BioRegions
12	Sweden	Joakim Robertson	Project Manager from LTC

Evaluation of the visit

The evaluation sheet for the stakeholders after the visit consisted out of the following questions (partly in multiple choice structure)

1. What was your general impression about your study trip:
2. Was the trip able to fulfil your expectations that you expressed beforehand?
3. What did you like best regarding the work of „BioRegion“ Achenal? Could you briefly explain your choice?
4. What was your impression about the practical arrangements (transport, accommodation, food, quality of presentations?)
5. What should we do differently next time for making your trip even more interesting and joyful for you?
6. What of the shown projects and activities could be implemented in your own target region?

The number of after-visit questionnaires returned is four from Czech Republic, one from Latvia, three from Ireland, three from France and three from Bulgaria, yielding 14 in total.

The answer to the first question showed a remarkable level of content of all stakeholders. In the overall content the analysis shows the average mark of 3.8 points (out of 4). Also question two about the fulfillment of expectations was good, 2.5 points (out of maximum 4). In detail, the cooperation of municipalities was highly satisfactory (12 of 14), while the realization of pilot projects, the information about bio-energy technologies and the networking possibilities was medium (8, 6.5 and 9 of 14, respectively). The points best liked points in Achenal include the customer orientation, the governmental support, the possible comparison with own projects, the cooperation between stakeholders, the local idea and implementation (local wood, local usage, local employment), the intelligent forest usage and the small scale idea in the cheese factory. Complete satisfaction was indicated with question four concerning the practical arrangement of the trip.

The question of for further improvements in similar activities in future produced several relevant items: it was criticised the trip duration was too short, study tours like this should be brought into a larger timeframe and with more visits to end-users. Visits to AD & PV sites would have been interesting for some, and information about tourism possibilities with bioenergy helpful. A discussion of failures in the project and how to avoid them was missing in the eyes of some participants. Finally, it was suggested to give all presentations prior to the visit in written form in order to allow a more profound preparation of the presented items. This important suggestion was implemented.

Some remarks on these points: it is obvious that the program was very full. Yet, it seems to be difficult to attract important stakeholders if the travel time exceeds three days. Obviously, paper preparation for the trip as suggested would allow better preparation of the partners. It should be noted that this means a big amount of translation work which seems too high in view to the added value. This could change when Achenal step by step is able to elaborate information materials in different languages.

The ideas possibly applicable in the own target region include before all the cooperation between all levels of organization, the tourism related projects, networking and technology (storage and others) around wood chips

Annex 1: Structure of stakeholder Interviews prior to the event Bio-energy Region Achenal

Dear stakeholder from the EU-Project "BioRegions",

With this letter we would like to inform you about our target region. Moreover we would like to ask you some questions which will enable us to prepare your trip in accordance to your expectations.

Short profile of "BioRegion Achenal"

Located in the south eastern part of Bavaria, the alp valley "Achenal" is situated along the river "Tiroler Ache". The region has a total surface area of 474 km² and a population of approximately 30.000 inhabitants.

Located on the fringes of the Bavarian Alps, agriculture and tourism are main economic



pillars of the region. In the last years Achenal has elaborated an individual profile on "alternative tourism".

Future Plans for self sufficiency in energy supply

It is a main objective for the region to successfully use the endogenous potential for creating products and service chains with a high regional value. During many years the initiative achieves very good reputation. Public and regional authorities found a well working cooperation that strives together for the goal of a sustainable future.

Achenal as "Best Practice Region"

Since 2009 the alp valley Achenal tries to spread and disseminate the own successful regional development as a winner of the open competitive bidding "Bio-energy regions" from the federal ministry of consumer protection, food and agriculture.

Since 2010 the Achenal attended the project "Bioregions" as a "best practice region". The project financed from the European Commission has the overall purpose to help and support the creation of „Bio-energy Regions" in a number of rural areas in Europe by:

- identifying success factors from best practice regions
- supporting networking activities in the target regions
- defining Action Plans for establishing five new bio-energy regions.

- encouraging and supporting other regions to replicate the project activities.

We are sincerely looking forward to welcoming you in the beautiful landscape of Achenal!

We would like to ask you to answer the following questions to give us a better understanding about your expectations for your visit in our region.

1. Name/denomination of the stakeholder/the organisation?

What about your previous knowledge regarding bio-energy / renewable energies?

2. Have you taken part in a previous event of the project „BioRegions“?
3. Are you aware about the aim of the project “BioRegions”, especially for your target region?
4. The regions of the project „BioRegions“ are very individual. Nature, political pre-conditions, bio-energy-potentials are very different – why does it make sense for you to visit a „good-practice-project“?
5. What do you expect from visiting the „BioRegion“ Achenal?
 - a) Information about the structures of co-operation? (Public- Private Partnership) and co-operation between municipalities?
 - b) Information about precise management of single projects? (Project development, technologies, funding)?
 - c) Information about the following flagship projects in the region (District heating based on regional woodchips, gasification of wood, turntable for logistic and know-how, decentralised biogas plants) ?
 - d) Information about the Bio-Energy Region Achenal itself (funding, public relations, partner network)?
6. Which additional information do you expect as well?

Thank you very much for your support!



Annex 2: Evaluation sheet

Dear stakeholder,

Following the Best Practice Visit in the Bio-Energy Region Achenal we would like to ask you for your experiences and impressions:

1. What was your **general impression** about your study trip:
 - I liked it very much.
 - I liked it, but.....
 - It was okay, but.....
 - I was not okay because.....

2. Was the trip able to fulfil your expectations that you expressed beforehand?
 - Regarding cooperation of municipalities?

 - Regarding project management?

 - Regarding planning and realisation of the pilot projects?

 - Regarding bio-energy technologies?

 - Regarding networking and new contacts?

3. What did you like best regarding the work of „BioRegion“ Achenal? Could you briefly explain your choice?

4. What is your impression about the practical arrangements (transport, accommodation, food, quality of presentations?)

5. What should we do differently next time for making your trip even more interesting and joyful for you?

6. What should be done in the second Best Practice Visit of the project?



Annex 3: Presentations

- “Bioenergy Centre Achental”, by Dr. Christian Epp
- “Ecomodel Achental”, by Wolfgang Wimmer
- “Modern forestry technologies”, by Thomas Dankemeyer
- “Short rotation crops” by Volker Kudlich

Bio-Energy Region Achental

Dr. Christian Epp
BAT



Alp Valley Achental



- Valley along the river „Tiroler Ache“
- Highest point: 2400 meters
- Population: 29.592
- Total surface area: 474 km²
- Forestry: 49,6 %
- Nature protected area: 31,1 %
- Cattle: 20.000



Structure of the Presentation



- Geography
- Biomass Potential and stage of consumption
- Project history and background
- Biomassehof Achental
- Future Plans

Agriculture



Village	Total Agricultural land	Animal Food Production land	Cattle fields	Mountain greenland	Agricultural land
Bergen	823	576	145	59	43
Grabenstätt	2.047	1.170	80	67	730
Grassau	1.023	684	67	161	111
Marquartstein	459	252	45	93	68
Schlechting	1.028	432	48	547	0
Staudach-E.	562	345	91	96	30
Übersee	1.640	1.194	164	37	245
Untervössen	899	377	87	431	5
gesamt	8.480	5.030	727	1.491	1.232

75 % of Farms are smaller than 20 hectares
Predominant is forestry and green land agriculture

Structure of the Presentation



- **Geography**
- Biomass Potential and Stage of consumption
- Project history and background
- Biomassehof Achental
- Future Plans

Tourism



- 129 accomodation units (having 9 beds or more).
- Tourist accomodation (2007): 830.000
- Profile on „alternative tourism“



Structure of the Presentation



- Geography
- **Biomass potential and stage of consumption**
- Project history and background
- Biomassehof Achenal
- Future Plans

Other organic residues



- Garden residues = 3.000 Tons
- Organic fraction of MSW = 1.500 Tons
- Other bio-waste = 800 Tons
- **Mostly used in biogas plants**
- **MSW logistic is difficult**



Wood chips



- Overall potential within 50 km: 300.000 m³ = 270.000 MWh
- Sources: Forestry, land cultivation, saw mills
- **Strongly varying quality!**



Animal Residues



- Cow and horse manure = 360.000 m³ / y
- Stable litter = 24.000 t / y
- **Corresponding to 27.000 MWh only**
- **Logistics for mobilisation are fairly difficult**
- **1 Ton of Manure = 5 Euro from FIT**
- **Post treatment would help tourism**

Wood chips consumption



Currently are consumed 112.300 MWh for district heating systems and decentralised boiler
 Large pellets plants take most of the wood chips and the saw dust
 → Mobilisation of additional sources is very important

	Wärmebedarf in MWh	Materialbedarf in SRM
Fernwärmenetz Reit im Winkl	26.300	43.833
Fernwärmenetz Grassau	12.000	20.000
Fernwärmenetz Lofen	20.000	33.333
Fernwärmenetz Ruhpolding	5.000	8.333
Futtertrocknung Brannenburg	10.000	16.667
Fernwärme Traunstein, Geising	7.000	11.667
Fernwärme Rosenheim	10.000	16.667
Fernwärme Bischofswiesen	12.000	20.000
Dezentrale Hackschnitzel Öfen	10.000	16.667
Gesamt	112.300	187.167

Structure of the Presentation



- Geography
- Biomass Potential and Consumption
- **Project history and background**
- Biomassehof Achenal
- Future Plans

BAT and Bioenergy Region



- 1996: Mayors of 8 Achtental municipalities form „Ökomodell Achtental“
- 2006: Achtental is selected as „Best Practice Region for EU Project „REST Integration“
- 2007: Bio-Energy Centre is founded in public-private partnership
- 2008: Centre logistics are erected



Quality requirements for Bioenergy region



- Small scale and decentralised units
- Sustainable supply of biomass
- Optimised CO₂ balance
- Well integrated into economic and cultural framework



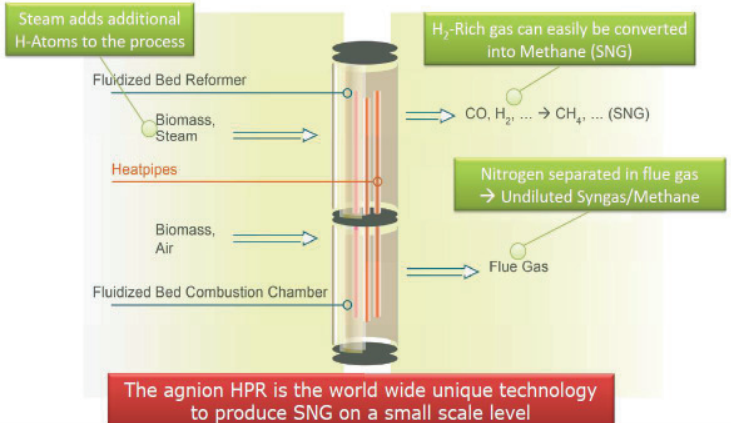
Biomassehof Achtental



- Logistic Centre for the mobilisation of regional bio-energy resources
- Development of new bio-energy projects
- Training and awareness raising
- 6 employed persons
- Management Bio-energy Region



Allothermal agnion Heatpipe-Reformer



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Structure of the Presentation

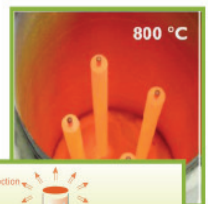


- Geography
- Biomass Potential and stage of consumption
- Project history and background
- Biomassehof Achtental
- **Future Plans**

Technical Challenge of Allothermal Gasification

Problem:

- Heat transfer from combustion chamber to reformer
- Small reactors requires extremely high heat fluxes at high temperatures
- Heat transfer coefficients determine heat fluxes and reactor performance



Our Solution:

- Heating of a fluidized bed gasifier by means of liquid metal Heatpipes increases heat transfer by a factor of 20...

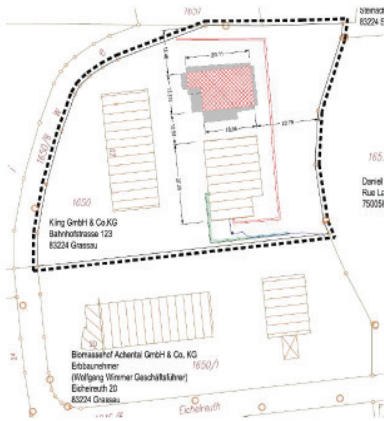


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agnion Heatpipe-Reformer - site Achenal



Thank you for your attention!

agnion Heatpipe-Reformer - site Achenal

CHP-plant for heat and power production

- Syngas: ca. 900kW
- Gas engine: ca. 360kW_{e1}
- Heat: ca. 565kW_{th}




Plans for other Summit Projects



- Wood gasification of 1,2 MW for electricity and heat production
- Small scale biogas plants for manure
- Agricultural pellets from horse stables
- High efficiency district heating networks

→ Demonstration region for cutting edge bio-energy developments




The Project Area

Bavarian communities



Grabenstätt
Übersee
Bergen
Grassau
Schleching
Unterwössen
Staudach-Egerndach



Schwendt Kössen
Oberwössen
Unterwössen Schleching
Marquartstein
Staudach Egerndach Grassau Rottau
Bergen
Übersee
Grabenstätt Foldwies
Ertstatt


Kössen
Schwendt

Project partners in Tyrol


The main river „Tiroler Achen“
with its famous estuary into the Chiemsee lake, best-known bird sanctuary in southern Germany for endangered birds esp. during migration
with the wild-romantic gorge of the „Entenlochklamm“

The Achental




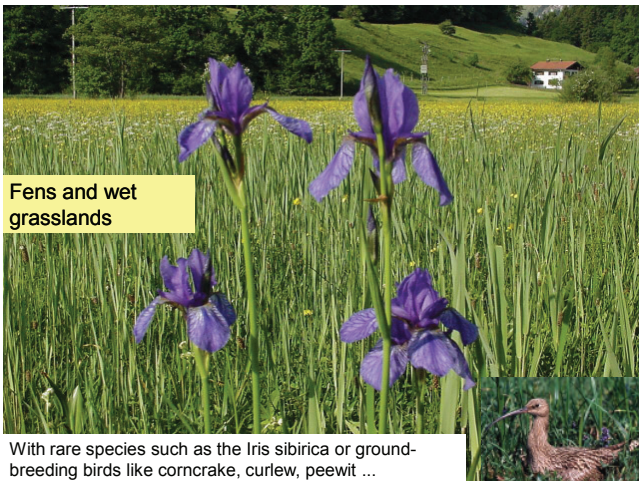
beautiful landscape – over 30 % nature conservation areas, 50 % forest areas
small farms (mostly family farms, often on a sideline basis)
handcraft business and nature based tourism – nearly no industry

wide fenlands




nature conservation areas
e.g. Kendlmühlfilze
(Filze = raised bog)






Fens and wet grasslands

With rare species such as the Iris sibirica or ground-breeding birds like corncrake, curlew, peewit ...

The Project Aims



- Conservation of nature and preservation of the rural heritage
- Safeguarding the work of the farmers as custodians of the countryside
- Fostering and developing environmentally compatible tourism and trade

It is hoped to achieve these goals in conditions of mutual understanding and benefit



Mountains up to 1813m with forests, streams, mountain pastures ...



Quality Achtental

The main criteria of the product logo are ...

- ...regional provenance
- ...ecological compatibility
- ...transparent methods of production




Eco-project for sustainable regional development



Quality Achtental – advertising media

Labels



Poster



Bag



QUALITÄT

Marketing

Some Restaurants offer a regional menucard

Directly from farms
Farmer ←→ Restaurant

ACHENTALER SPEZIALITÄTEN	
Kalbshbraten vom Untersträßberghof, Staudach dazu pikanter Rosenkohl, Karottefingerrin, Salat	15,-
Hirschbraten aus dem Schöchinger Tal dazu Apfel-Blaukraut, Demeter-Spätzle, Salat	14,-
Chiemsee-Forelle an Grassauer Frühkartoffeln mit Kräuterrahm	13,-
Lammbraten vom Stockinger, Bergen mit deftigem Bohngemüse und Obstkartoffeln	14,-
Kaiserschmarrn mit Kompott aus Grabensätter Zwetschgen	8,-
Apfelmus vom Langenspacher Hof, Grassau	3,-
Schöchinger Birnenlikör	2,50
Alte Zwetschge-Gut Sossau, Grabensätt	3,-

Qualität - ganz auf in's Achenal
Produktions- & Verkaufsstellen

Activities

QUALITÄT

Marketing

Farmers' Market
- each Saturday from 8.30 – 12.00

Achentaler Bauernmarkt
Jeden Samstag
08.30 bis 12.00 Uhr
in Grassau (Hellerstadt)

Special Activities

Activities

sector agriculture:

- Analysis of diversification of sources of income for participating farmers and advisory support for the development of individual farms
- Linking the interests of farmers and consumers in the regional marketing of all produce from ecologically compatible farming in the Achenal
- Special support for farm holidays, including development and publicity
- further education for farmers, e.g. computer skills
- Development of a regional marketing system for near-naturally grown produce from the region
- Logo and marketing concepts

QUALITÄT

Marketing

The „Regional Shelf“ in certain grocer's shops

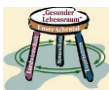
Publication of various brochures for direct marketing

Activities

sector agriculture:

- information events
- exhibitions and markets

Children making fresh apple juice at an exhibition in Bergen



Activities

nature conservation:



- Conservation and development of biotopes, fenlands, extensive grasslands and alpine pastures
- Conservation of fruit tree areas and plantation of new fruit trees
- Visitor management in ecologically sensitive areas
- Sustainable management of alpine forests

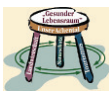


Activities

Guided Nature walks

the guides are trained continuously

- e.g.
- flower and herb walks
 - woodland walks with a forester
 - excursions to the moorland areas
 - birdsong or insect walks
 - Special walks for families where the secrets of nature are revealed in a more playful way



Activities

environmental awareness:

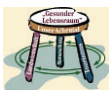
- for children and
- adults among the resident population and visitors with regard to the beauty of the landscape and the need to protect it



Activities

Sector Tourism:

- development of a common tourism profile based on the rural culture of the Achenal
- close cooperation of the tourism officers
- tourism workshops
- common offers
 - achenal-card
 - nature discovery programmes
- "holiday without car"
 - in summer: achenal-bus
 - in winter: bus to the skiing area in tyrol (free for guests of the Achenal)



Activities

All About Farming

activities to gain an insight in the daily life on a farm,

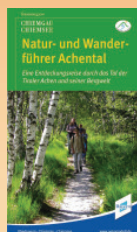
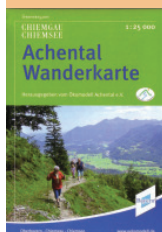
e.g.

- sheep farming: sheep rearing, combing, spinning and felting wool
- guided farm tour
- the alpine pasture today – including a guided walk, lending a hand in the upkeep of the pasture and making herbal cream cheese
- baking bread or making butter and cheese on a farm



Tourism

common brochures and maps



Since 2005: Renewable Energies

- Target region (Dezember 2004) European Programm „RES-Integration“
- reason: increase supply with renewable energies in landscape regions
- project study about available areas
- first project: Biomassfarm

Thank you for your attention!



Vision

- energetic self-sufficiency of the region until 2020
- increasing cooperation of the communities
- rising the regional awareness and the value added



Auf dem Foto von links:
Rudi Janke, 2. Vorsitzender,
Fritz Irbacher, 1. Vorsitzender,
Staatsminister Josef Miller,
Bayerisches Staatsministerium für
Landwirtschaft und Forsten
Hans Haselreiter, Schatzmeister
Wolfgang Wimmer, Geschäftsführer
„Ökomodell Achantal“

Awards

Award „Sustainable Land Use in Bavarian Communities“

Als Preisträger des Wettbewerbs „Zukunftsfähige Landnutzung in Bayerns Gemeinden“ erhielt der Verein „Ökomodell Achantal“ im Rahmen des Festaktes im „Goldenen Saal“ im Augsburger Rathaus von Staatsminister Josef Miller eine mit 10.000 Euro dotierte Auszeichnung. Das Bayerische Staatsministerium für Landwirtschaft und Forsten initiierte den Wettbewerb mit dem Ziel, besonders gelungene Beispiele einer zukunftsfähigen Landnutzung herauszuheben und zur Nachahmung anzuregen. Im Votum der Jury zum „Ökomodell Achantal“ heißt es: „... Zukunftweisende Zusammenarbeit von acht Gemeinden sowie Anrainern auch in Tirol mit umfangreicher Bürgerbeteiligung zur Vernetzung der wirtschaftlichen und ökologischen Belange und zur Schaffung von Einkommensmöglichkeiten...“.



Modern Forestry,

Odds and Risks of Bio – Energy

Tourism and Forestal Education by the BWEZ

Thomas Dankemeyer



Bergwallerleibniszentrum
Ruhpolding



Amt für Ernährung, Landwirtschaft und Forsten
Traunstein



General

Total land area *hectares approx. 805,000*
(11.4 % of the land area of Bavaria)

Forested area *hectares approx. 720,000*

Hunting area with extensions *hectares approx. 830,000*

Number of staff *persons around 2,900*



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Traunstein



Modern Forestry

In July 2005, the Bavarian state forest was released from administrative control and placed in the responsibility of private business



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Traunstein



Ecological

Total stock as per inventory *Cubic metres (solid cubic metres felled) 205,000,000*

Annual new growth as per inventory *Cubic metres (solid cubic metres felled) 6,100,000*

Annual sustainable cut *Cubic metres (solid cubic metres felled) 5,200,000*



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The Bayerische Staatsforsten Enterprise (BaySF) is a huge enterprise with a heavy responsibility.

In the following an overview in figures:



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Traunstein



Ecological

Annual newly cultivated land *hectares approx. 2,200*

Trees species mix (percentage of area)
Spruce 46 %, Pine 18 %, Beech 16 %, Fir 2 %, Oak 5 %, Other 13 %



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Traunstein





Social

Walking paths *km approx. 9,000*

Cycle paths *km approx. 3,400*

Bridle paths *km approx. 270*



How to do that job?

Modern technology

Adapted methods

Responsible planing

Motivated crew



Financial 2010 fiscal year

Turnover *Millions of euros 331.9*

Profit *Millions of euros 52.4*



Odds and Risks of Bio – Energy

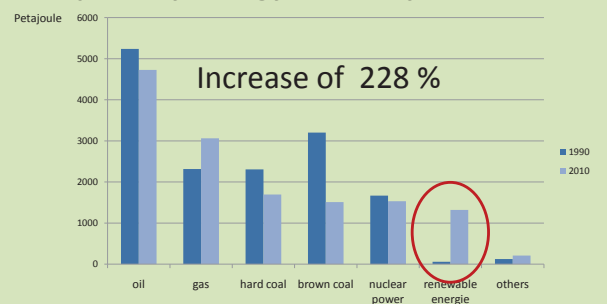


The balance must be maintained across three key areas:

1. The forest must be maintained in an exemplary manner.
2. The forest is there to be enjoyed by people and it also provides job opportunities in rural areas.
3. BaySF must be able to stand on its own two feet financially.



Key data of primary energy Germany





Odds and Risks of Bio – Energy

The nuclear power age seems to be on the skids

The era of dramatically climate change has already begun

Wood is a renewable resource which can, sustainably used, considered as carbon neutral.



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Risks



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Risks

The resource is limited, the consumer of fuelwood get problems to supply themselves.

The costs rise

Buyers competition between Forestry and consumers endangers the acceptability of modern forestry



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Tourism and Forestal Education by the **BWEZ**

Bergwallerlebniszentrum

Mountain forest education center



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Risks

Wood chips and – pellets generate dependance as they cannot be produced by the consumers themselves.

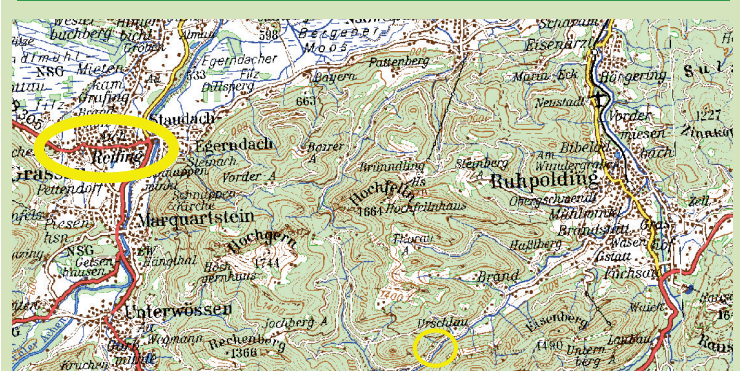
High demand may cause competition between wood-working industry and fuelwood companies.



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The Team

Leadership
education forest and
environment

Administration

Powersaw training
Education Forest
and Environment



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Common Purpose

Every participant should know at least something about
„sustainable resource management“

Every participant should have seen, that we try to
implement the idea of sustainable resource management

Every participant should have realized, that we have just
one world.



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Offer of service

Duration of stay:
3 hours up to two weeks

Target audience:
Schools
Kindergarten
Tourists



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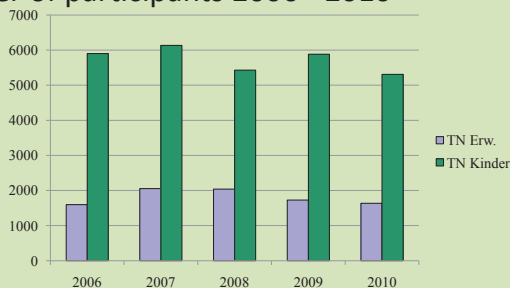


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Balance

Number of participants 2006 - 2010



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Short Rotation Crops

Experiences from Germany and Achenal

Wolfram Kudlich and Dr. Christian Epp

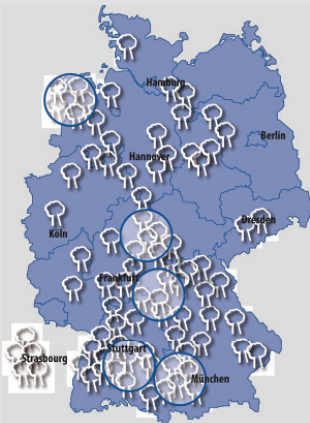


Full plantation cycle



4

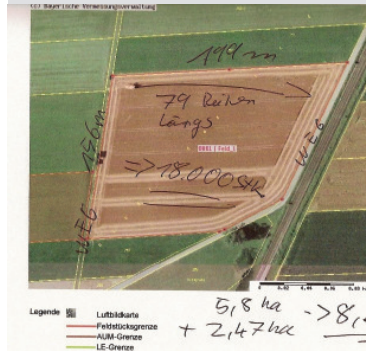
Service Company „WALD 21“



- Own forestry with 100 ha
- All round service provider for 200 ha
- Sale of plants to 150 customers (farmers, utilities, municipalities),
- Strategic focus on regions! Regional hubs for infrastructure and sales.

2

Proper preparation is very important



- **Plantation structure?**
 - Two lines, one line?
- **Ground preparation?**
 - Time frame? Fertiliser?
 - Soil loosening
- **Selection of plants**
 - Species
 - From where, how many?
- **Technique**
 - Plantation?
 - Cultivation?

5

What does that mean „short rotation crop?“



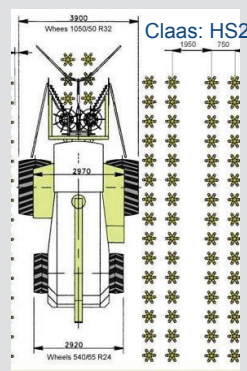
- Cultivation of trees on agricultural space
- Production of wood chips for energetic purposes
- Special plants with strong growth in youth periods
- „Short rotation“ between 3 and five years.
- The plant can regrow after harvesting



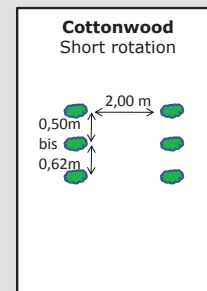
Cottonwood Plantation after two years

3

Plantation Structure and crop technologies

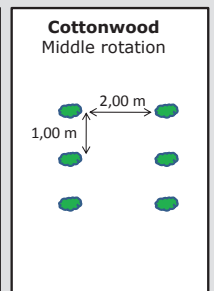


Willow: 13.000 p. /ha
Harvesting: 3-4 Years



Cottonwood:
8.000 -10.000 p./ha

Harvest: 3-5 Years



Cottonwood:
5.000 p./ha

Harvest: 5- 10 Years

6

Plantation technologies



Productivity of short rotation crops

- Accession ca 10 to 12 t dry substance per hectare and year
- Rotation period between 3 and 5 years



10

Cultivation: the first year is decisive!



8

Harvesting



Harvesting, transport and logistics are the most critical cost factors

- efficiency only with special machinery
- space of 3 – 5 hectare required
- regional focus

11

Herbicides help... in the first year



9

Wood chips drying



➢ **Combination out of natural and industrial drying from waste heat!**

➢ **Storage in storehouses is very expensive**

12

Future development of bioenergy markets



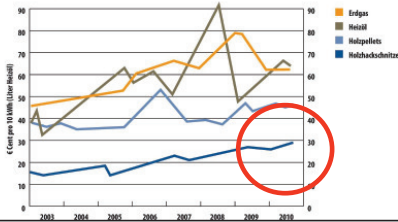
DBFZ Prognose der energetischen Holznutzung



DBFZ Holzaufkommen und -bedarf bis zum Jahr 2020



Preisentwicklung bei Holzhackschnitzeln, Holzpellets, Heizöl und Erdgas



Da für den Holzbedarf ihrer Holzhackschnitzeln-Heizung oder als zukunftsweisende Ernahmsquelle ihres Betriebes – der Verbau von Feldholz lohnt sich. Abgeleitet aus C.A.R.M.E.N e.V. Mittelwert 3. Quartal 2010: ca. 140 Euro / t bzw. die einem Liter Heizöl (EL) entsprechende Menge kostete demnach ca. 89 Cent.

13

Economic forecast



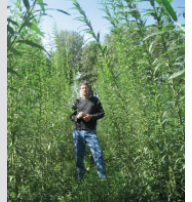
	Cost per Unit	Amount	Expenses	
Field preparation	Lumpsum		120	Euro
Herbicide	Lumpsum		115	Euro
Plants		10.000	1.800	Euro
Planting expenses	Lumpsum		200	Euro
Total			2.235	Euro

Economic yield (chipped on the field)	85	Euro / ton dry substance
Expected yield	50	Tons dry substance / hectare
Total space	3,5	Hektar

Purchase by Bioenergy Centre Achenal in 2010:

Wood chips premium: 17,5 Euro / m³ = 96 Euro per ton

Wood chips mass quality: 11,5 Euro / m³ = 63 Euro per ton



Case study Achenal



Pilot Plant on 3,5 Hectares

Wet land with poor quality

Proximity to the motorway

Used as green land sofar

Neighbouring nature protected area

Profit and Loss Forecast

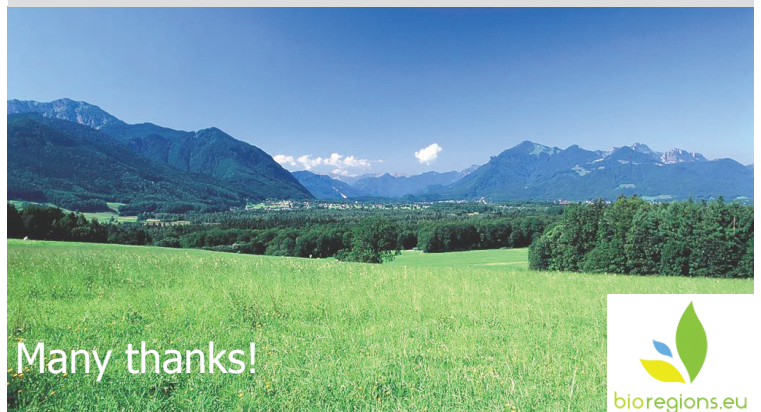


	Index	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 25	Total	
Harvesting Yield	5,00%	0	0	0	0	14.875	15.619	16.400	17.220	18.081	82.194
Subsidies		0	0	0	0	0	0	0	0	0	0
Maintenance		0	0	0	0	0	0	0	0	0	0
Harvesting Cost		0	0	0	0	8.750	6.000	3.750	2.000	24.000	24.000
Depreciation on 25 years		494	494	494	494	494	494	494	494	12.350	12.350
Interest with 2,5 %		0	216	216	216	173	130	86	86	2.853	2.853
Recultivation		0	0	0	0	0	0	0	0	6.250	6.250
Total		-494	-710	-710	-710	5.458	8.995	12.069	13.139	9.337	36.741
Internal Rate of Investment	8%										
Payback bank loan		0	0	0	0	1.729	1.729	1.729	0	1.729	8.645
Rest loan		8.645	8.645	8.645	8.645	6.916	5.187	3.458	3.458	0	122.759
Liquidity		-12.350	0	-216	-216	-216	4.223	7.760	10.834	13.633	40.446
Liquidity culminated		0	-216	-432	-648	3.375	10.643	20.959	34.246	40.446	375.025

Plantation plan



- Space for machine handling
- Space for hunting
- Environmental space



Many thanks!

