

Innovations for clean water



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Practical Report Finca & cheese production

Majorca:

Between binge drinking and contemplation

Year for year ca. 10 million holidaymakers are drawn into the "17th German Federal State" and into the favourite destination for Germans and Britons. But the gigantic tourism brings the largest island in the Balearics not only money and prosperity: environmental and wastewater problems are on the agenda – the paradise is crying out to be rescued!

Frederic Chopin, the musical genius from Poland, who has left us with an unforgotten inheritance of celestial sounds, thought this about it: "A sky like turquoise, a sea like lapis lazuli, mountains like emeralds, air as in heaven". The talk was of Majorca, the second home of the famous composer. And of four million others who cannot resist the attraction of this pearl of the Mediterranean Sea.

Year for year ca. 10 million people set off in order to pay a visit to the largest of the Balearic Islands lying in the Mediterranean. The reasons for this are widely differing. While one person seeks rest and recuperation away from the daily stress, another comes in order to turn the night into day so as not to miss a single party. Equally varied as the motives of individuals are also the onlookers: from personalities such as King Carlos of

Spain or Princess Diane of France over stars like Michael Douglas or Claudia Schiffer up to and including the innumerable "Normalos", who come from Germany or England.

Already on the way from the airport in the direction of the island's capital the observer is made aware of the diversity of the coveted island. On the left, between airport and Palma, lies the first extreme of Majorca: the party metropolis S'Arenal with some 250 hotels

and ca. 50,000 hotel beds. Here you party until you drop, one barrel after another is tapped, wild froth parties and narcissistic orgies are celebrated. In between: quick snack at the "Bratwurst-Maxe" sausage stand, sobering up on the beach. Then off again ... Somewhere between the penultimate and final bucket of sangria, the impertinent nickname of "Malle" for Majorca was also probably born in this wretched place.



Change of scene; next extreme. A couple of hundred metres away from "Malle" Majorca, in a north westerly direction lies the exclusive Puro Beach Club, the Mediterranean pool terrace of the lifestyle hotel of the same name which is to be found in the centre of Palma. Those who can afford it, meet here alongside influential industrial magnates, successful authors and exceptionally gifted artists - naturally always with enchanting escort! – also prominent persons such as the television cook Tim Mälzer or rock star's daughter Jade Jagger. Like all the others, they also are driven by the desire for regeneration, the longing for sunshine and the prospect of Mediterranean sensual delights on the almost 3,500 square kilometre large island – and completely secondary, in one of the many 5-star luxury hotels which are spread over the whole of Majorca.

Miguel Angel Vives Lliteras knows the sensual delights which the better-off have set their sights on: sun, ambitious ambiance, good wine and ... excellent cuisine. Subsequently he and his 11 members of staff, since 1987, have produced on the Finca S'Atalaia, some of the products which have helped Majorca to an enormous growth of image in gourmet circles: Quesos Artesenales S'Atalaia – qualitatively outstanding cheese made from goats' and sheep's milk. "At the beginning", he says, "it was not quite so simple to gain acceptance of the special flavour of our hand-produced cheese in a tourist market characterised by cultural differences. Due to the different impressions of

quality with the high-quality tourism and – in the meantime, enormously important! – through the certification as «Producto natural» in 2002, we have, however, been able to establish ourselves excellently in the segment «Premium»".

Above all "Natural" and "Ecologia" (Ecology) have become very important in Majorca. The island wishes to get away from the negative image due to cheap tourism, binge drinking and concrete castles, wishes to have the image of a green, natural and sheltered island, wishes for quality instead of quantity. Reality, unfortunately, shows a different picture: even the quality tourism leads to negative ecological changes, through the use of land Majorca is losing ever more of its classical landscape characteristics; golf course, residences and yacht harbours are squeezing out pine woods, almond groves and steep coasts. The free market law of supply and demand today determines the development of the one-time paradise and ensures the selling-off of the resources of Majorca. Money happens to rule the world.

But that's not all: even the water resources are endangered by the tourism, the amount of the water consumption correlates closely with the touristic level of development of the communities. Many of the rural communities are already recording per capita consump-

tion of less than 100 litres of water per day, while the consumption in many tourist locations climbs to more than 250 litres per head and day and occasionally even exceeds 400 litres.

The ecological balance of groundwater renewal and groundwater extraction on Majorca, however, has already been lost for a long time and in the long-term. The effect on the groundwater, already in the 1990s, led to a lowering of the groundwater level and infiltration of sea water into the groundwater. As a result the content of salt of the water from the wells in the complete Palma basin and also elsewhere on the island lay at up to 5,000 mg/litre. For information: the WHO limit for healthy, harmless water lies at 250 – 500 mg/litre, up to 1,000 mg/litre the water is still drinkable, after this there are dangers for the water and material content of the cells. Even the sea water desalination plant, operated since 2000 in the Palma Basin, in the long-term, will not ease the situation.



"See and be seen" is the slogan on the "Malle" beach Playa de Palma in S'Arenal (Photo left).

Landmark and eye-catcher of Palma: the cathedral La Seu is one of the most beautiful church buildings in the world (Photo right).





Cheese production at S'Atalaia

Already at 7 o'clock in the morning the excitement in the stables of the Finca S'Atalaia is great: even before breakfast, for the 1,700 animals in the milking parlour, it is all about emptying semi-automatically the tightly filled udders and giving the animals relief (Photo above). Following the bacteriological testing, the milk is heated up to ca. 32°C. For the conversion of the lactose into lactobacilli, which allow the milk protein to curdle, acidification cultures and/or laboratory enzymes are mixed into the milk.

As soon as the so-called gelatine shows the correct consistency, a start is made with the cheese. Using the so-called "cheese harp", a sharp cut-



ting instrument consisting of several cheese wires in a stainless steel frame, the mass is cut evenly into small pieces the size of a corn cobs – the curd results (photo above on the right).

The remaining, enormously fatty, watery part, the whey, is disposed of via the outlet, while the cheese mass remains in the container until it has reached the correct consistency.

As soon as the cheese mass has the correct consistency it is filled into the pressing forms with the remaining whey (small photo below). The residual whey also flows into the outlet, the cheese now remains in the pressing forms. During the next few hours, the mass is pressed in the forms with increasing

pressure and turned over several times. In the subsequent salt bath the whole cheeses take up some salt on the surface and give up fluids. The solid rind begins to form. The whole cheeses retain their stability. After this the young cheeses come into the cool cheese room.

At the end of daily production the complete cheese dairy equipment is cleaned and disinfected using strong cleaning agents; the highly toxic detergents go into the wastewater system of the finca (large picture below).





How long will the characteristic olive and almond groves hold out against the environmental evils of Majorca

Naturally cheese producer Miguel knows this – both as deeply rooted Majorcan and also as dedicated businessman: “In order to be able to continue to produce our Quesos Artesanales S’Atalaia as «Producto naturales», we are dependent on all our natural resources – from our land, our animals, our water. Therefore we must take action ourselves in order to get hold of the situation, to protect our nature and to secure all our futures.”

Miguel Angel Vives Lliteras has acted. He tasked the firm Agua Vivas based in Artá/Majorca with the investigation of his old wastewater treatment plant - a cesspit with two chambers for the incoming wastewater and a further compartment for the percolation – as well as of the current wastewater production of his Finca S’Atalaia, which lies ca. 40 kilometres southeast of Palma in the direction of Santanyí, immediately in the vicinity of the dreamy, small location of Lluçmajor with its tiny cafes and shops.

Following comprehensive research and various analyses the results did not

take long to appear: on the overall 300 hectares large property of the Viva Lliteras family there are ca 1,700 sheep and goats grazing, daily there are over 1,300 litres of milk from the animals processed for the much sought after cheese. Which means: hundreds of litres of warm, high fat whey, the liquid waste from the cheese dairy, are sent to the outlet daily.

Together with the highly aggressive detergents which are used for the disinfection of the cheese dairy equipment, as well as wastewater from the social rooms, the composition – with the treatment performance of the old three-chamber cesspit, which is hardly worth mentioning – is a small environmental catastrophe. And this in the middle of the finca!

Miguel was convinced! The old plant had to be rehabilitated as quickly as possible and be equipped with the latest technology in order to avoid more extensive environmental damage in front of his own house door, in order

to prevent damage to his home and to secure the future.

Following precise planning works, Aguas Vivas now converted the old plant completely. The various wastewater streams – those containing fat and those without – were separated from each other. The three existing chambers of the old cesspit were now turned into a grease separator, primary settling stage and buffer tank; a new SBR tank was produced, a downstream constructed wetlands installed. In order to control the quantity of water for the percolation an additional buffer tank made from plastic was added which passed the water, regulated, to the wetlands. For the technical part of the SBR tank, Aguas Vivas selected an AQUAMAX® PROFESSIONAL GZ for up to 53 PT. “This plant is just very reliable, offers an unbelievable treatment performance and is – should it ever be needed, capable of being expanded”, thus Peter Enge, the managing director of German origin, of Aguas Vivas. The new facility could now be commissioned.

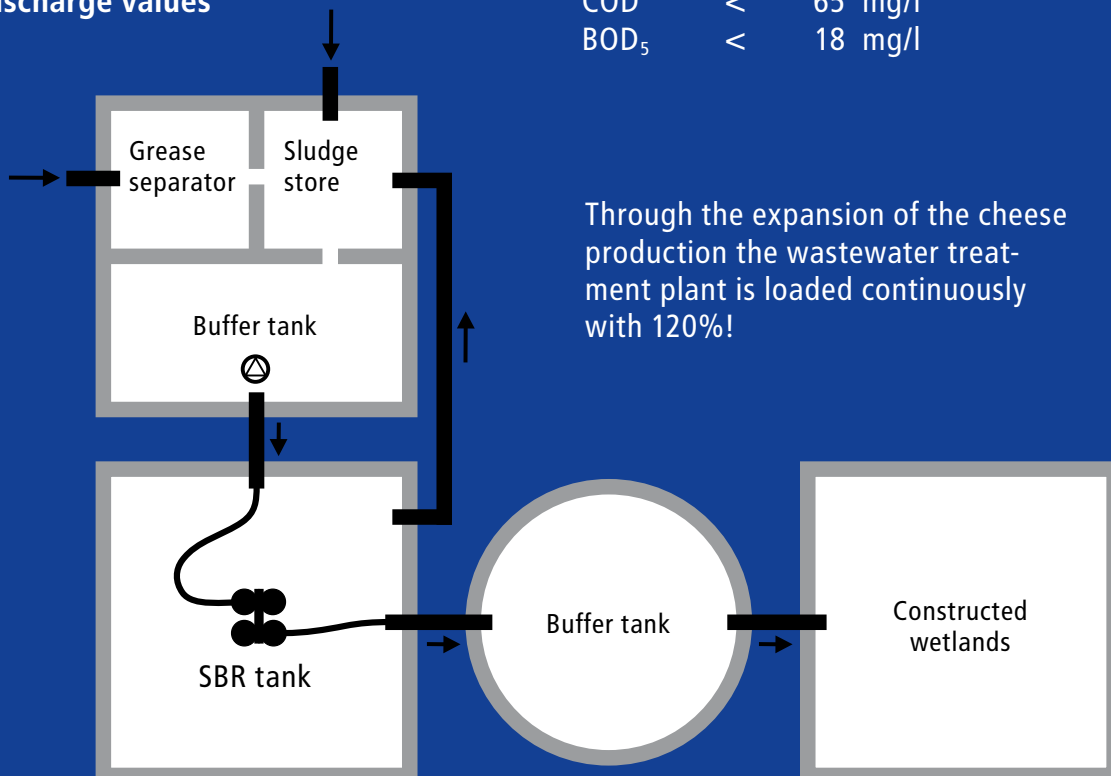
Already today, shortly after commissioning the new wastewater treatment plant, the wastewater on S'Atalaia is no longer a topic: everything is running well on track, everything has been done in order that Miguel's «Producto naturale», also in the future, stands on the tables of high society. And perhaps, when environmental awareness has also reached the x-millionth visitor to the island, "Malle" will somehow once again be just «Majorca».



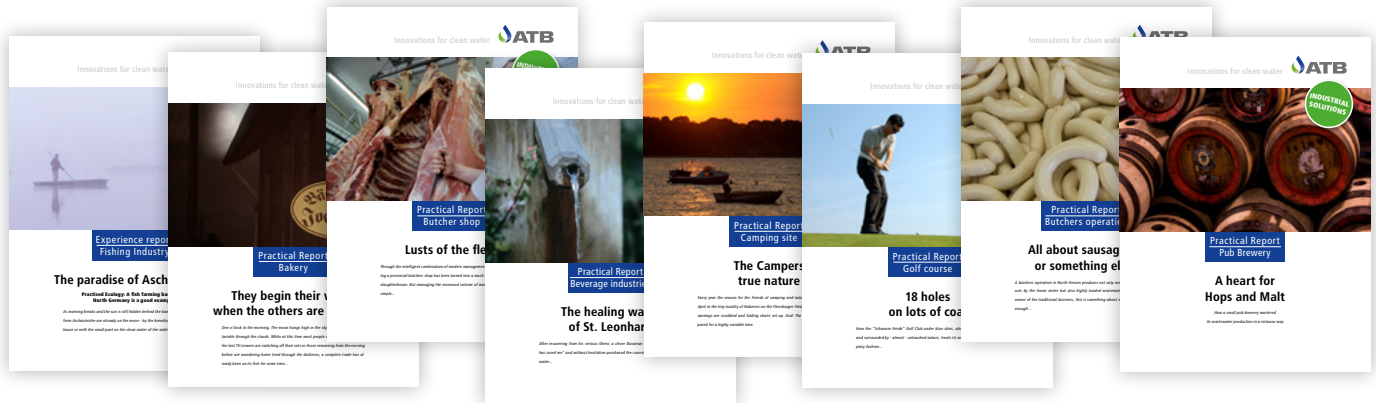
The new wastewater treatment plant at Finca S'Atalaia.

The finca & cheese production project at a glance:

Owner	Finca S'Atalaia, Majorca/Spain
Project management and installation	Aguas Vivas, Artá, Majorca/Spain
Plant technology	ATB Umwelttechnologien GmbH
Plant size	AQUAMAX® PROFESSIONAL GZ 53 PT
Commissioning	2007
Discharge values	COD < 65 mg/l BOD ₅ < 18 mg/l



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