

Is a land-based ‘explosion’ on the cards?



By Rachel Mutter

Land-based aquaculture should not be seen as a threat to traditional cage culture but a way to expand capacity where growth is restricted, Anders Milde Gjendemsjo, director of consulting at Deloitte and author of a new study on the costs of land-based salmon production told *Fish Farming International*. “There is room in the salmon industry for different farming systems,” he said.

High demand and prices along with flattening global production, biological challenges and increasing production costs since 2005 have all led to a huge interest in post-smolt land-based farming and to land-based tech producer Akva commissioning an independent report into costs from Deloitte.

As his research Gjendemsjo took three possible farm set-ups and costed them based on production of 5,000 tons of fish (an as yet unachieved volume in land-based production) being grown to 5 kilograms. It was assumed that the operations would be set up in Norway. The first system, traditional open net pen production at sea where smolt production takes place on land but fish are transferred to net pens at 100g; the second, land-based production up to 1 kilogram before transfer to sea and the third, full-land based

production from egg to market. A total investment cost was estimated within a range for each system, along with a production cost.

*“There is room in the salmon industry for different farming systems.”
Anders Milde Gjendemsjo, Deloitte*

At NOK300-450 million, upfront investment costs were deemed to be lowest for total land-based production, compared to NOK405-505 million at the highest end for the second set-up and NOK325-NOK470 for the first. It is important to note that investment costs in the first and second systems include farming licences priced at NOK60-80 million, said Gjendemsjo.

Production costs were calculated to be highest for the land-based production at around NOK26.75 per kilo but they were only 5 percent higher than the cheapest system of set-up two, and 1 percent higher than the NOK 26.5 per kilo calculated for set-up one. Freight costs are obviously also key to the land-based argument, which allows fish to be farmed anywhere, irrelevant of geography or environment. These were estimated to be NOK4 for European markets, NOK 10 to the United States and NOK 12 to Singapore as examples of additional price flexibility that can be added to any costings for land-based systems.

The calculations were based on Norwegian prices — where labor and feed costs are relatively expensive, but electricity costs are low. Places like Poland, North America and Asia are particularly suited to full land-based production, said Gjendemsjo. Poland because of proximity to large processing facilities; North America because of the strong NGO/environmentalist backlash against cage culture; and Asia because of proximity to growing markets and demand for safe food.

And this demand is a key factor in the growth of land-based production said Gjendemsjo, who calculates that if production costs can be achieved at his predicted figure, then the capital investment is really no big challenge for the industry of the future. Even in Norway and Chile there is opportunity, said Gjendemsjo. “In Norway it is impossible to buy licences now... and in Chile there are biological challenges,” he said. “The investment is not so much the key — there are so many possibilities for EU grants and so much investment interest — the key is that people want to produce healthy food and there are so many arguments to do it so if the technology allows.”

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And herein lies the crux, as land-based farming at scale is as yet, unproven. “There’s no problem with these investment costs if you can achieve these operations costs,” Gjendemsjo told *Fish Farming International*. He pointed out that operations in Denmark are starting to get somewhere in driving down production costs and said that once they do, land-based farming “will explode”.

“I think in terms of volume we will see significant growth in 5-10 years time. Then in maybe 10-20 years

time I can see it actually influencing world production,” he said. “Many people are considering it today.

“Aside from opportunities for producers, people forget the fantastic opportunities for service industries that can grow alongside a land-based industry,” said Gjendemsjo. “Of course you shouldn’t take fish out of the water. It’s about adding capacity, not replacing current production. Offshore and land-based can work together, but of course none of this is proven yet. My hope is that both will turn out to be proven.”

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