



**Asia-Pacific
Economic Cooperation**

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Effluent Monitoring

Purpose: Information
Submitted by: New Zealand



**Industry Roundtable
Lima, Peru
13 October 2008**



Effluent Monitoring

APECTel 38
Industry Futures Roundtable
Lima, Peru October 2008

Who is MediaLab



- Independent R&D company building solutions for Telco and rural sectors
- Works with NZ universities
- Specialists in communications research
- Works with other companies to develop integrated solutions



Farmgate Programme

- Development of novel solutions to benefit farmers, the supply chain, exporters and retailers
- Utilising innovative ICT systems
- Leveraging best-of-breed researchers
- Strong focus on animal traceability and environmental monitoring



Effluent – what’s the fuss?

- As dairy systems intensify and become larger operations with more staff – effluent management gets harder to do right all the time.
- Urban NZ’s view on the impact of dairying on the environment is becoming more critical
- Regional Councils are intensifying their monitoring of waterways and response to breaches of resource consents
 - Jan 07 Taranaki Regional Council **\$NZ30,000 fine**
 - Jan 07 Taranaki Regional Council **\$NZ10,000 fine**
 - Jan 07 Waikato Regional Council **\$NZ35,000 fine**
 - Feb 08 Hawkes Bay Regional Council **\$NZ20,000 fine**
 - Mar 08 Environment Southland **Community Service**
 - Jun 08 Environment Southland **\$NZ60,000 fine**

Effluent monitoring – how does this help?



Breaches are most often caused by;

- Irrigating when soil is too wet
- Irrigator breakdowns
- Storage overflow



To avoid these;



Step 1 – know what's going on



Step 2 – work out the best action

RE:GENERATION

The future of effluent management



- Simplifies the system
 - Saves time at busy times of the year
 - Less decisions for staff
- Based on farm level data
 - Don't have to find regional figures
 - Don't have to go out & manually take readings.



Components – inputs



Step 1 – Know what's going on



Components – inputs



Step 1 – Know what's going on

But how can you without monitoring?



Components – inputs



Step 1 – Know what's going on

Sensor network over the farm, monitoring;

- Soil moisture & temperature
- Rainfall, wind speed, air temperature, humidity
- Effluent pond level
- Irrigator movement

Uses technology to automatically capture and transmit sensor readings.

Sensor readings aggregated in a central database.



Components – outputs



Step 2 – Work out best action

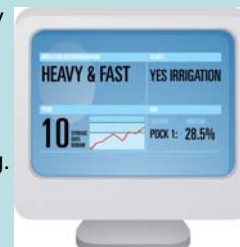
Irrigation recommendations;

- Readings are put through “rules” of the relationship between soil moisture, pond level and irrigation rates.
- Automatically determines the “best” action, each day

Irrigator control;

- Readings coming in continuously
- Automatically knows when the irrigator stops moving.

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How does it work?



Platform technology – what else could be done



- With a sensor network in place the data collected can drive other applications;
 - Soil moisture & temperature
 - Pasture growth prediction
 - Best time to apply Nitrogen fertiliser
 - Volume & concentration of effluent
 - Record where effluent is spread
 - Nutrient budgeting
 - Effluent system design

Thank you – any questions?

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