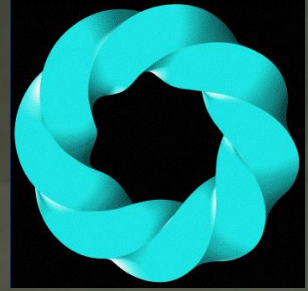
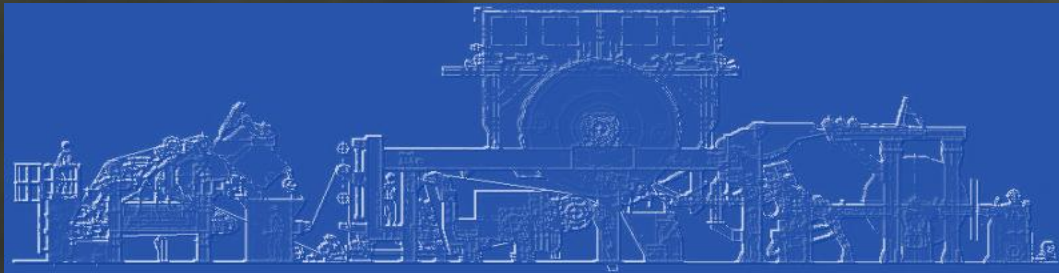


# CLEARWATER CONSULTING PARTNERS



## INTRODUCTION TO SERVICES



# Services



CLEARWATER

Clearwater Consulting Partners offer full service design, engineering, management, and implementation for all aspects of forest industry projects - with particular emphasis on pulp & paper mill activities

We operate with a truly global perspective and have completed projects across 4 continents



# Background



CLEARWATER

## Key points:

- Independent bias-free advice
- Immense experience across all major paper sectors
- In-depth experience of pulp & paper mill construction, relocation and modernisation projects
- Truly unique in-house process engineering & design technology
- Highly successful project execution track record
- Global network and partners
- Experience of working with international clients and partners

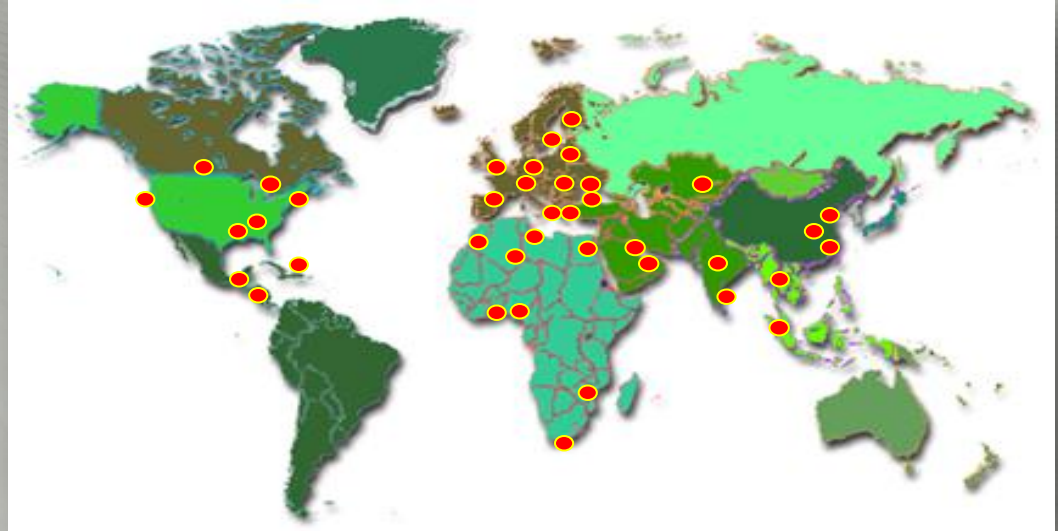
# Global experience



CLEARWATER

## Client countries:

- Finland
- Canada
- Austria
- Sweden
- Denmark
- Czech Republic
- Germany
- France
- Nigeria
- Italy
- Spain
- Kazakhstan
- China
- South Africa
- Guatemala
- Trinidad & Tobago
- Greece
- Egypt
- Ukraine
- Tunisia
- India
- Malawi
- UK
- Puerto Rico
- UAE
- Saudi Arabia
- Tunisia
- Russia
- Ghana
- USA
- El Salvador



# Capabilities



CLEARWATER

## **CLEARWATER offers full service solutions for:**

- ❑ Mill modernisation & upgrade
- ❑ New pulp and paper mills
- ❑ Product Development
- ❑ Pulp & paper mill relocations
- ❑ Process modelling & simulation
- ❑ Interim & transitional management
- ❑ Owners engineer & FEED
- ❑ Due Diligence Studies
- ❑ Financial Modelling
- ❑ Power generation – oil / gas / wind / biomass
- ❑ Automation, control & reporting
- ❑ Resource development
- ❑ Learning curve support
- ❑ HR training & technology transfer

# Engineering



CLEARWATER

All disciplines – MEICA →

- ❑ Mechanical
- ❑ Electrical (inc. ac + dc sectional drives)
- ❑ Instrumentation
- ❑ Control
- ❑ Automation (PLC → DCS)

Unique process modelling technology:

- ❑ Dynamic modelling, including real-time simulations and predictive control



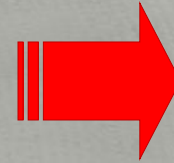
**Design:**

- ❑ 2D + 3D CAD →
  - ✓ Machinery
  - ✓ Process
  - ✓ MEICA
  - ✓ Complete Plant



### Simulation & predictive control

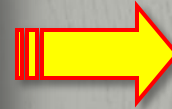
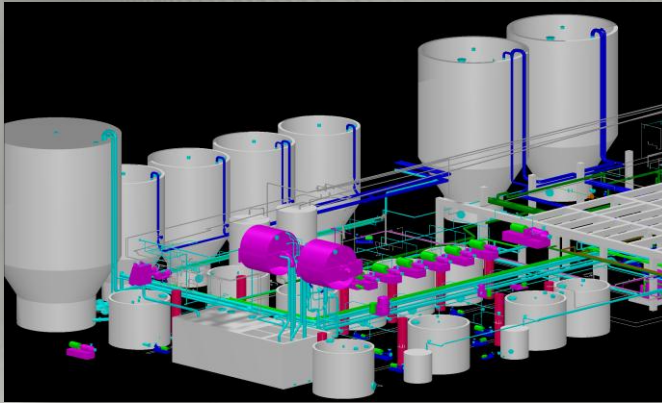
- ❑ Dynamic, non-linear – inc. non-steady states
- ❑ Interactive – client operable
- ❑ Iterative – zero error
- ❑ Equilibrium – for discrete elements & total process
- ❑ Forward-driven – process replication
- ❑ Specific & generic process algorithms
- ❑ Specific “quality” forecasting algorithms
- ❑ Predictive control capabilities
- ❑ Real-time continuous operation → analogous to “flight training simulator”



**Right First  
Time  
=  
LOWEST  
RISK**



## Design, Engineering & Project Management

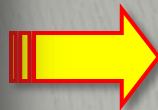
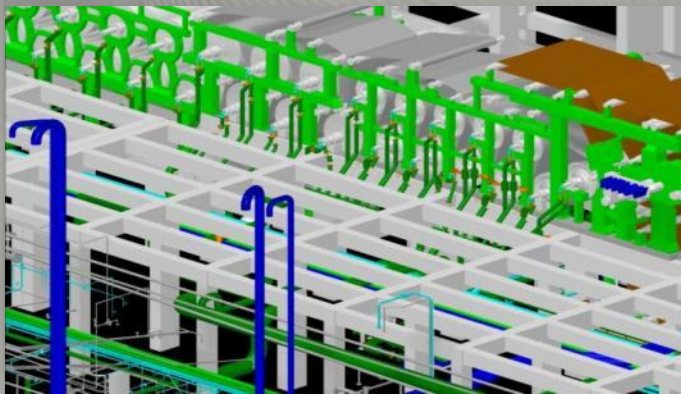


# Fluid Systems



CLEARWATER

Air, Water, Fibre, Chemical, Vacuum & Steam Systems





### Specific capabilities

- **Environmental engineering**
  - ❑ Renewable energy
  - ❑ IPPC certification
  - ❑ Environmental impact assessments (EIAs)
  - ❑ International Standards
  - ❑ Energy conservation, recovery, auditing
  
- **Water Treatment & Waste Reduction**
  - ❑ Process systems closure - “kidney” solutions
  - ❑ Waste water treatment plants
  - ❑ Raw / incoming water treatment plants



## ➤ Project Management

- ❑ Owners Engineer
- ❑ EPCM Contracts
- ❑ Integration of resources
- ❑ Project management – all levels
- ❑ Procurement
- ❑ Financial control
- ❑ Planning & synchronisation



## ➤ Health & Safety

- ❑ Project Control & Planning Supervision
- ❑ Risk assessments
- ❑ Method statements
- ❑ Failure Modes & Effects Analysis (FMEA)
- ❑ H&S compliance



# Support



CLEARWATER

- ❑ Project management with local support across all disciplines and all areas
- ❑ Project integration & implementation planning
- ❑ Training & technology transfer
- ❑ Project financing
- ❑ MEICA site installation
- ❑ Cost monitoring & control
- ❑ Client focussed project implementation
- ❑ Vendor & contractor co-ordination



# Start-up & Operation



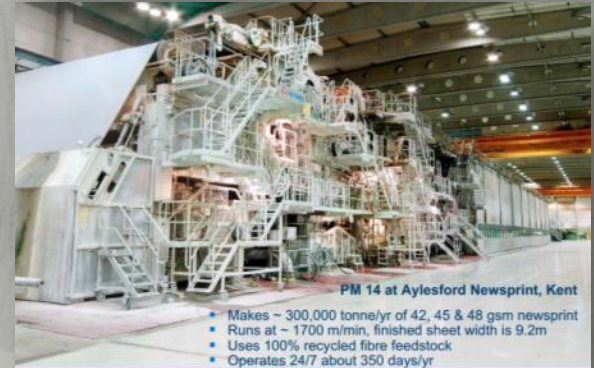
CLEARWATER

## Project delivery:

- Installation
- Check-out
- Commissioning & start-up
- Learning curve support
- Optimisation
- Total Management

## Mill operation:

- Training, technical & operational specialists
- Technical training & mentoring
- Operational support
- Executive management
- Learning curve minimisation
- Maintenance programme development & support



## **Productos Reciclados de Balaguer S.A.**

1 Place Ville-Marie, Suite 2228  
Montreal (Quebec) H3B 3M4 Canada  
Tel.: (514) 866-2801/ Fax: (514) 866-2024  
dynamis@biz.videotron.ca

C/ Urgell s/ n, 25600 Balaguer  
Lleida, Spain  
Tel.: 34-973-44-90-81 / Fax: 34-973-44-64-80  
prb@sct.ictnet.es



CLEARWATER

Testimonial received for the EPCM contract construction of a complete tissue paper mill with integrated de-inking line in Spain

### **REFERENCE FOR** **CLEARWATER PAPER TECHNOLOGY LTD.**

To whom it may concern:

This letter will serve to confirm that our Spanish subsidiary, PRODUCTOS RECICLADOS DE BALAGUER, S.A., retained the services of CLEARWATER PAPER TECHNOLOGY LTD. in 1999 to provide turnkey engineering services for the civil, electrical, mechanical, process and control design of a paper tissue machine installation and deinked pulp line at Balaguer, Spain.

Our Corporation has participated in numerous industrial projects all over the world in the last 20 years, as investors and venture capitalists.

We have rarely experienced such a high level of expertise, commitment and service from an engineering company, and strongly recommend them for any project, which will need that extra "push" to ensure its success.

We are available to personally comment on the above.

Respectfully,

Michel Gaucher  
President

# Summary



CLEARWATER

Clearwater Consulting Partners provide our Clients with management, engineering, know-how, design, integration and innovative process technology based upon:

1. Desire to build & develop robust, ongoing business relationships
2. Immense experience of our personnel
3. Specialist (unique) know-how & technology
4. Multi-discipline capabilities
5. Global span
6. Work hardened executives, managers & leaders
7. Innovative (unique) process design capability
8. MEICA installation capability
9. Specialist skills
10. Bespoke engineering, technical & operational capabilities

# Our approach



CLEARWATER

- ❑ *Never compromise the Outcome*
- ❑ *Always:*
  - ✓ Define all process objectives
  - ✓ Model the entire manufacturing process plus all key parameters using dynamic simulations and modelling
  - ✓ Simulate every operating scenario and parameter range
  - ✓ Ask every “*what if?*” question
  - ✓ Select the optimum combination of unit operations & equipment irrespective of vendor
- ❑ *Seek to minimise / mitigate / eliminate Risk*

# Our philosophy



CLEARWATER

A relationship-focussed approach to delivering solutions based on forming partnering relationships with our clients

- ❑ Focus on total real costs and added-value
- ❑ Build win/win relationships
- ❑ Maximise system efficiency
- ❑ Building close relationships
- ❑ Proactive communication
- ❑ Flexible contracts
- ❑ Building trust and alignment of fortunes



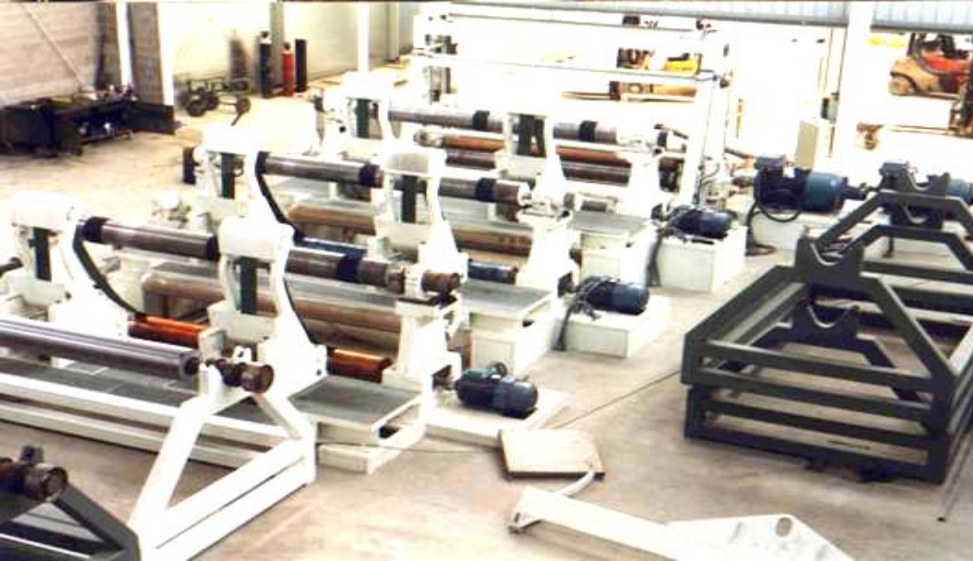
Our track record speaks for itself...



CLEARWATER

No part  
of the  
Clearwater Technology Group has  
ever  
failed to deliver a successful project

A list of clients and reference examples is available







# CLEARWATER

