Investment Proposal

For Water Monitoring using Mobile Labs for Water Analysis in the Baltics

Project Management:
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www.technicalpartners.ca
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Date/Place Business Established:
April, 1992, Toronto, Canada
February, 1994, Riga, Latvia

Form of Business:
project management
consulting

Areas of expertise:
project management
development projects
food/pharmaceutical production
manufacturing
construction related services

Objectives:
Introduce mobile labs for continuous water monitoring in the Baltic region.

Pay-Back Period
Less than 3 years

Funding Requirement:
€700,000

Use of funds
Equipment Purchases
Working Capital

Interest on loan:
15 % interest budgeted for loan of €450,000 for a €700,000 project

Detailed financial are available.

This PROJECT is too develop a water monitoring business using the LAR mobile laboratory as a basis in a private company funded by private investors for use in the Baltics States (Latvia, Lithuania and Estonia).

The OPPORTUNITY:

1. Municipalities have no reliable way of continuously monitoring sources and levels of pollution from industry or agricultural activity.
2. The Baltic Flows program involving seven countries around the Baltic Sea have undertaken to study the effect of rainwater on the pollution of the Baltic Sea. There is currently no technical means whereby continuous water monitoring can be accomplished.
3. €22 million in EU financing will be available for water monitoring in Latvia alone over the next few years.
4. Pollution reduction regulations are continually being updated and tightened creating a need to address effective water monitoring.

Technical Partners will capitalize on the above by introducing mobile laboratories providing for continuous water monitoring to the region.

The TECHNOLOGY: LAR Process Analysers AG of Berlin, Germany, a leading supplier of online analysers for the determination of sum parameters in water, has completed a successful pilot project in South Africa by developing and supplying a mobile laboratory (ML) for water monitoring. This is suitable for the Baltic Sea region.

SOURCES of INCOME:

- Municipalities
- Private industry
- Government programs

The PROMOTING COMPANY: Technical Partners is a private consulting firm registered in Latvia as **"TP Riga" SIA** and Technical Partners International Inc. in Canada, and has been active in Latvia since 1993.

The PROMOTERS:

Ed Kalvins, the owner of **"TP Riga" SIA**, is a Latvian-Canadian fluent in both Latvian and English and based in Latvia. Ed has extensive engineering and plant management experience from Canada, and over 20 years experience in Latvia. His team provides local know-how and familiarity with regulations and procedures. He is also networked with partners in Estonia and Lithuania.

Alvis Līdums, also with **"TP Riga" SIA**, is a Latvian Project Manager fluent in Latvian, Russian and English with considerable manufacturing experience analysing business opportunities both from economic and technical aspects.

The REQUIREMENT: The investment requirement is **€450,000** of the total **€700,000** project costs to be invested over two years, the remainder contributed by the promoters. The investment may be in the form of a loan or venture capital. The pay-back period is less than four years.

The REWARDS: A 15% interest rate has been budgeted for loans for a total €185,000 in interest. Equity shares are negotiable. At the end of the fourth operating year, the project will have a €1,475,000 surplus.

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1 FORWARD

1.1 Background

Technical Partners is participating in a project named "Baltic Flows". See http://www.balticflows.eu/. The Baltic Flows project deals with rainwater monitoring and management in Baltic Sea catchment areas and involves the following countries: Finland, Sweden, Denmark, Estonia, Latvia, Germany and the UK. The Baltic Flows project will lay the foundation for developing new capacities and policies for effectively monitoring and managing the quality and quantities of rainwater moving from one place to the next. Baltic Flows focuses on streams, rivers and cities in the Baltic Sea catchment areas, not on the sea itself. The strategies, knowledge and expertise created during the project can be exploited elsewhere in the Union and in other global regions. The project will support the development of research-driven clusters in each region; enhanced capacities in diffuse load monitoring and urban storm-water management will lead to new business opportunities in the global market for water monitoring and management know-how and solutions. Water quality monitoring is am important issue.

As a separate issue, local municipalities have a need to identify major polluters to enforce local regulations. This is currently difficult to do with regular sampling and laboratory analysis methods.

LAR Process Analysers AG of Berlin, Germany, developed into the leading supplier of online analysers for the determination of sum parameters in water. See http://www.lar.com/. LAR has participated in a pilot project in South Africa by developing and supplying a mobile laboratory (ML) for water monitoring. See http://rpr.gov.lv/pub/index.php?id=502, http://www.balticflows.eu/, and http://www.lar.com/news-events/news-display/presse/zeige/Pressemeldung/iwrm-in-south-africa-lars-mobile-lab.html.

Technical Partners ("TP Riga" SIA / Technical Partners International Inc.) has represented LAR Process Analysers in the Baltic States since December, 2008. The TP Riga office is located in Riga at Vienības gatve 109.

€22 million in EU financing will be available for water monitoring in Latvia alone. Projects will need 15% own funds. This is part of an extensive program which is currently being set up within the government for implementation in late 2015.

Capital purchases in Latvia, particularly to the public sector, can be difficult. Purchases are based on tenders and must go through due process. However, services that do not exceed particular limits, may be purchased without a tender.

1.2 Project Objectives

To develop a water monitoring business using the LAR mobile laboratory as a basis in a private company funded by private investors. Water monitoring services would be offered by renting the mobile laboratory's services for a fee to government, municipal and private institutions.

The market would be tested by purchasing one unit, with additional units purchased based on demand. This project is based on purchasing one unit for use in year two of the project, then one unit each following year until four units are in operation.

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2 THE ORGANIZATION

2.1 Business Model

There are various business models available and these will depend on the investor(s) and/or strategic partners. In any event, the basis of the project is a private company selling the services of the ML to federal, municipal or industrial users.

1. Technical Partners ("TP Riga" SIA) could be the initial company managing and promoting the project, and submitting funding requests and completing sales and marketing functions. This is perhaps the simplest and fastest alternative. Investors and strategic partners would be involved on a contractual basis.

2. Joint Venture company or separate limited liability company could be formed to advance the project. This could be an investor or strategic partner preference. However, it could be more difficult to implement and manage.

2.2 Names of Key Personnel

Ed Kalvins, the owner of **Technical Partners International Inc.** (Canada) / **"TP Riga" SIA** (Latvia). Project promoter for the Baltics.
Dr. Wolfgang Genthe, Head of Projects, **LAR Process Analysers AG**. Developed the ML.
Wladimir Morsakov, LAR Export Manager East Europe

Other personnel are listed in section 8, MANAGEMENT and KEY PERSONNEL

2.3 Briefly about Latvia

Latvia regained its independence from the Soviet Union in 1991 and began the difficult process of converting from a planned to a free market economy. In the mid 90's, Latvia was experiencing the challenges of economic transition, including multiple banking crises, economic boycotts by Russia, unfamiliarity with western (particularly European) practices and politically-related development issues.

Latvia is now considered a western state that must abide by EU regulations, having joined the European Union and NATO in 2004. This provides a more stable and predictable foundation.

2009 saw a significant economic downturn because of the world economic crisis. In 2010, the government of Latvia initiated austerity programs as demanded by the International Monetary Fund (IMF). These measures have resulted in the stabilization of the Latvian economy and have led to growth since late 2011 – despite debt problems in the Eurozone. Latvia's credit rating continues to be upgraded along with comments about its positive outlook. This is also reflected in Standard & Poor's November 14th, 2012 rating adjustments, changing long and short-term local and foreign currency sovereign credit ratings on Latvia from BBB-/A-3 to BBB/A-2, and Latvia's transfer and convertibility (T&C) assessment from A- to A. This rating now stands at BBB+ and the (T&C) at AAA.

The now independent Latvia has also benefited from its history with established traditions in banking, manufacturing, education and development that provide the foundations for future growth and development.

Latvia adopted the € on 1st January 2014.

Latvia has favourable company tax rates of 15%. There are no restrictions on the repatriation of profits or the transfer of funds from the country.

Latvia, along with all EU member countries, is also obliged to meet EU Directive relating to pollution control.

3 INDUSTRY ANALYSIS

The ML project will concentrate on the Baltic States (Latvia, Lithuania and Estonia). For the purposes of the projects introduction, references will only be made to Latvia.

3.1 Size and Growth Trends

Though the economies have been improving since the crisis of 2009-2010, there has been a marked population decline with extensive emigration, particularly of the younger generation, to Western Europe in search for jobs. This has resulted in a fairly stagnant economic situation and a general reluctance to invest in non-EU sponsored projects.

The bank sector has not helped either, as getting loans is extremely difficult, and investment risk capital is difficult to find as most lending institutions are extremely conservative.

However, EU regulations as pertaining to the environment have been tightening and pollution control, particularly where it concerns the Baltic Sea, is an issue. EU funding is also allocated to environmental projects such as those relating to pollution monitoring and reduction. Because of this, it is expected that activity in this sector will increase.

3.2 Vulnerability to Economic Factors

The current geopolitical situation, particularly with Ukraine, is not without effects on the Baltic States. The climate of uncertainty is generating a “wait and see” mood for investments and for investors. It could be that the new reality as regards to Russia will normalize shortly in that Russia will be recognized as an adversary, but everyone will get used to it.

The driving factor will be currently budgeted and available monies for water monitoring projects (€22 million for Latvia). However, we have recognized a need at the municipal level that could be exploited even without support financing.

3.3 Seasonal Factors

Most rivers in Latvia freeze over in the winter months, and winters are generally cold and sub-zero. One can expect rivers to be iced over from January to April. Sub-zero conditions usually prevail from December to March, hence precipitation in the form of rain can be rare during this period, though not altogether non-existent. There will be short periods of thaw during the winter, and thaw run-off will be a major issue in March and April.

3.4 Technological Factors

At present, there does not appear to be technology that can meet water monitoring requirements in the Baltic region. Monitoring now is done by collecting samples, which does not give an accurate picture of peak events. Technology and know-how will play a key role in this project. LAR’s experience in the South African project will be invaluable. This, together with state-of-the-art equipment developed and manufactured by LAR gives the ML a decided advantage.

3.5 Regulatory Issues

Regulatory issues will have to be investigated as the project develops, but from superficial discussions, it appears that there are significant conformity and control issues as relating to water monitoring pollution data. Information simply isn’t available. This is both an existing problem and an opportunity for us to address.

4 TARGET MARKETS

4.1 Main Clients

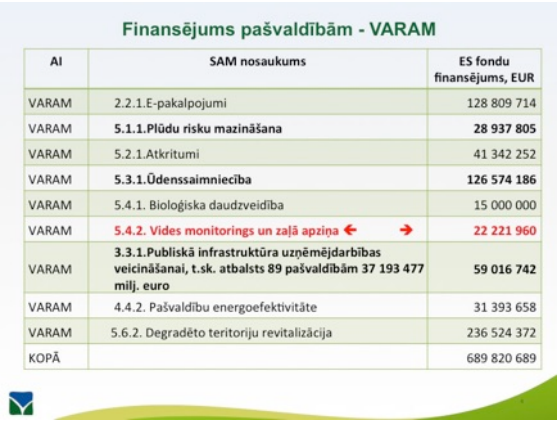
The main client group is expected to be municipalities that are charged with controlling run-off water and industrial effluent.

Private Industrial users will also be potential clients, but because of Latvia's size and the size of most industries, this may not be a major contributor. These users will only purchase equipment or buy services if forced to by regulations.

The Baltic Flows program should generate a great deal of business, but exactly who will be the client (the entity with the money) won't be clear until announcements are made as to possible programs. It may very well be that monitoring projects are assigned to a university or one of the scientific institutes, in which case these organizations could become either a partner or client.

4.2 Source of Funds

While we expect income from municipalities and industry, EU financing has been identified as the secure source of funds and income. The Ministry of Environmental Protection and Regional Development presentation to a Baltic Flows seminar identified that €22,221,960 is budgeted for monitoring activities which will be available later in 2015. We are preparing for this.



Finansējums pašvaldībām - VARAM

AI	SAM nosaukums	ES fondu finansējums, EUR
VARAM	2.2.1.E-pakalpojumi	128 809 714
VARAM	**5.1.1.Plūdu risku mazināšana**	**28 937 805**
VARAM	5.2.1.Atkritumi	41 342 252
VARAM	**5.3.1.Ūdenssaimniecība**	**126 574 186**
VARAM	5.4.1. Bioloģiska daudzveidība	15 000 000
VARAM	5.4.2. Vides monitorings un zaļā apziņa ← →	22 221 960
VARAM	**3.3.1.Publiskā infrastruktūra uzņēmējdarbības veicināšanai, t.sk. atbalsts 89 pašvaldībām 37 193 477 milj. euro**	**59 016 742**
VARAM	4.4.2. Pašvaldību energoefektivitāte	31 393 658
VARAM	5.6.2. Degradēto teritoriju revitalizācija	236 524 372
KOPĀ		689 820 689

4.3 Potential Partners / Clients

Technical Partners has presented the ML to numerous potential partners or clients, whereby they would be responsible for the acquisition of funds from the Ministry, and work with Technical Partners for practical data collection via use of the ML. Early marketing has demonstrated definite interest in the service.

To date:

- Jānis Kalnačs of the Institute of Physical Energetics in Latvia has confirmed the institute's interest to use the ML for monitoring projects.
- Inga Grīnfelde of the Latvian University of Agriculture in Jelgava, Faculty of Rural Engineering has confirmed the university's interest to use the ML for monitoring projects.
- Baiba Gulbe of the Latvian Water and Wastewater Works Association recognizes that the mobile lab is unique and is willingness to work with us to promote the ML to her members.
- Gen Mandre of 4people NGO in Estonia, who works with University of Life Science in Tartu, Estonia, stated that "they are partners of the project. I share your opinion, that the service you are providing is very needed in Baltic."
- Sanita Jankovska of the Riga Planning Region and a Baltic Flows partner has indicated that no such services are offered in Latvia, and that they are prepared to inform all the municipalities in the Riga Region as to the availability of the service. We are already being promoted through the Baltic Flows program.

4.4 Purchasing Patterns and Buying Sensitivities

1. Municipalities

   The purchasing of water quality monitoring equipment is usually motivated by the need to meet regulations and/or the availability of government funding to finance purchases.

   Government agencies purchasing equipment have to include the cost of such equipment in their budget, then go through a tendering process. This is both time-consuming and the results are not assured. If this includes the addition of personnel, this further complicates matters.

   Leasing programs for short periods simplifies the process for government bodies and allows for expenditures within their departmental authorization limits.

   The program offered by Technical Partners also relieves municipalities and government agencies of maintaining this equipment there-by providing them with cost savings and less problems.

2. Private industry

   Capital costs for on-line monitoring are relatively substantial as compared to sampling and lab analysis. In the current economic conditions, it is safe to say that such investments will not be made unless there is a threat of penalty which exceeds the capital costs.

   With this in mind, the leased equipment approach making payments relatively small gives a company the benefits of on-line monitoring for a fraction of the cost, and to get reliable information in a short period.

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5 THE COMPETITION

There are no known companies offering mobile labs or even stationery water monitoring equipment in the region.

5.1 Barriers To Entry

The technology is the main barrier to entry. LAR's equipment overcomes this.

Understanding the economic climate, local culture and having a network within the industry is mandatory for promoting the project.

Experience in water monitoring is a definite asset. LAR's participation in the South African project is a big plus for credibility.

6 MARKETING AND SALES STRATEGY

6.1 Overall Strategy

TP will arrange to have the project capitalized and run as a private company offering services to the private and public sectors, charging on a per diem basis.

TP will participate in the Baltic Flows project as it develops and identify strategic partners with whom the services can be either financed through government programs or offered along with the services of these partners. Private industry will also be made aware of this service.

6.2 Marketing Vehicles & Tactics

The first "push" will be to personally approach municipal leaders (mayors) who are connected politically and known to the project promoters, or municipal personnel involved in regulation or water systems. This will then be expanded to other municipalities.

6.3 Sales Force & Structure

Ed Kalvins and Alvis Lidums will be responsible for sales with the assistance of partners who will be motivated to attract orders. There are no plans to hire permanent or contract sales people, but this may change if funding allows.

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7 OPERATIONS

The basis of this project is LAR's experience in South Africa:

- see attachment #1: Integrated Water Resources Management in the "Middle Olifants" river basin, South Africa (page 19).
- see attachment #2: Integrated Water Resources Management – Pilot Project "Middle Olifants" in South Africa.

7.1 About the Project

Excerpts are from the following document:

Economic Aspects of IWRM. Mitigating Water Shortages in a River Basin on the Example of the "Middle Olifants" River Basin in South Africa.

Karl-Ulrich Rudolph[1], Annabelle Kalinowski[1], Jens Hilbig[1], Daniel Gregarek[1], Djiby Thiam[2], Christian Jolk[3], Andreas Abecker[4], Wolfgang Genthe[5], Tatyana Karasyova[5], Rafael Jechorek[5], Stefania Paris[6], Celine Schlapp[6], Fritz Stammer[7]

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[2]Center for Development Research (ZEF), Walter-Flex-Str. 3, 53113 Bonn, Germany

[3]Ruhr-Universität-Bochum, Environmental Engineering and Ecology (eE+E), Universitätsstr. 150, 44801 Bochum, Germany

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[5]LAR Process Analysers AG, Neuköllnische Allee 134, 12057 Berlin, Germany

[6]Huber SE, Industriepark Erasbach A1, 92334 Berching, Germany

[7]Huber Technology (Pty) Ltd, 6530 George, South Africa

5. Benefits and advantages of a Mobile Container Laboratory

A basic requirement for IWRM is not simply the knowledge of available and usable water resources, but also their quality and the demand of suitable preparation need to be checked before using. It therefore needs continuous monitoring in particular. During Phase I of the research project IWRM South Africa it was found that there are only a few reliable quality data available on surface water quality in the Middle Olifant Area. Especially the establishment of point sources as measurement points is a good idea to examine the impact of domestic and industrial discharges: typical measuring points could be a sample extraction point above and below tributaries, dams, towns, WWTP and mines. The investigation of the influ-

ence of diffuse sources (along the intensively used agricultural areas) should be reviewed to check the current land use practices.

As part of the IWRM-Project, LAR has developed and operated a Mobile Laboratory to detect the water quality and to investigate different important parameters (Table 3).

Table 3 Equipment in Container Laboratory

Container Laboratory/Device	**Parameter**
High temperature TOC	TOC, TC, TIC, COD, TN
Nitrificant Toximeter	Toxicity (TOX)
Ion selective electrods with standard addition	NH_4^+ (Na^+, K^+, Cl^-, F^-, Cd^{2+} etc.)
Photometer	SO_4^{2-}, PO_4^{3-}, NO_2^-, NO_3^-, TN, TP, Fe^{2+}, Al^{3+}, COD
Electrods	pH, conductivity, redox
Weather station	T, wind, humidity, air pressure, rain

All data from the devices and sensors installed in the Mobile Laboratory are collected in a single server and transferred to a mobile receiving station. The data should be presented in a way that is compatible with the database ensures of the DWA. The overall objective of this project is in collaboration with South African regulatory authorities, to develop and to demonstrate a customised online measurement and data transmission system, which is processing cost-effective, can be used decentralised, is adapted to the local conditions and tested in different situations. The monitoring campaigns shall support the implementation of the National Water Resource Strategy (NWRS, DWA 2012).

It is intended that this container should be available for a large number of locations (approx. 20 per year) and for a measurement period of about 1 week per location (Table 4). During these measurement phases also short-term changes in the water status at the sampling point can be detected ("discharges after work"), which will be reported and documented. Simultaneously retain samples are collected for further investigation if there are undesirable changes in water quality.

Table 4 Monitoring-Program for Mobile Laboratory

Monitoring aim (Mobile Laboratory)	to examine the impact of the main pollution sources
The main pollution sources*	Domestic - 27%; Agriculture (Irrigation – 62%; Commercial Forestry- 3%); Industry and Mining - 8%
Amount of the monitoring	approx. **20 per year**: typical measuring points

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location	would be sample extraction point **above and below** of discharges.
Measurement period	About **1-3 weeks per location**: during these measurements phases also short-term changes in the water status at the sampling point can be detected

***** % - Use/demand of water of Olifant area

In collaboration with South African regulatory authorities the first measuring point "Kubu Kwena" was chosen: it is situated on the banks of the Olifants river between the towns of Groblersdal (17 km) and Marble Hall (10 km), near the hydrology measuring point B3H026 and the inlet of tributary Moses river in the Loskop Valley (Fig. 7). In May 2013 the mobile lab has been field-tested for ten days in this Middle Olifants Area where the measuring equipment could be tested successfully in practice

The first results of the Mobile Laboratory have been compared to data of Loskop Canal by Prof. Anna-Marie Oberholster, University of Stellenbosch: Nov. 2011 – June 2012, to cross-check the measuring results (Table 5).

Table 5 Measured Parameter, results of the Mobile Laboratory at Kubu Kwena and comparison to Loskop Canal

Parameter measured	Units	Loskop Canal	Kubu Kwena	Class 1 (recommended operational limit)	Class II (max. allowable for limited duration)
Ammonia nitrogen	mg/l N	<0,2	**>0,004 – 0,09**	<0,30	>0,30 – 0,50
Chloride	mg/l Cl	14,50	**>14 – 76**	<200	>200 - 600
Phosphate	mg/l P	0,25	**>0,004– 0,02**		
Sulphate	mg/l SO4	131,99	**>50 – 135**	<400	>400 - 600
pH		6,33	**>7,5 – 8,3**	<8	
Conductivity	µS/cm	373,69		<150 000	>150 000 – 370 000
Total Dissolved Solvents	mg/l	204,10		<1000	>1000 - 2400
TOC	mg/l C		**>8– 25**		
COD	mg/l C		**>20 – 75**		
Total Nitrogen	mg/l N		**>2 – 7**		
Nitrite	mg/l N		**>0,003 – 0,02**		
Toxicity	TOX, %		**>0 – 52**		

The Mobile Laboratory equipped with the technology of LAR Process Analyses AG is a very stable mobile system whose innovative measuring systems deliver accurate and reproducible results which can be used as a data basis for the optimisation of a supervision monitoring program and for the support of the NWRS of South Africa.

7.2 Technology:

The aim of the mobile lab is to support and improve current governmental monitoring systems. It is a stand-alone solution that practically applies the approach of innovative online analysis of water quality and the fast and comprehensive data transfer to all partners and authorities involved in the project. Using the lab inspections and monitoring of diverse discharges from diffuse sources, from households, as well as industrial pollution sources are directly possible. It helps the authorities to prepare measures for the improvement of water quality in good time enabling the coordinated development and management of water, land and related resources.

The ML is constructed and equipped like a chemical laboratory. Additional facilities with protective measures such an alarm system are essential.

The mobile lab has an autonomous power supply and is ready for operation quickly.

Parameters for measurement:

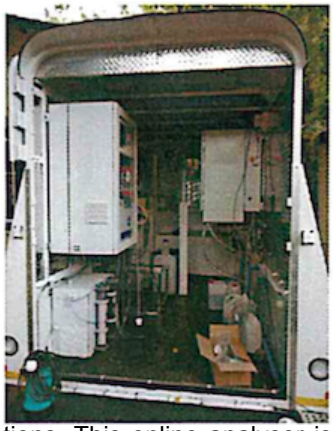
- pH, conductivity and redox.
- TOC (total organic carbon), COD (chemical oxygen demand) and TNb (total bound nitrogen)
- ammonia levels and toxicity.
- the LAR QuickTOC analyser is equipped for the online operation as well as for individual measurements on site.
- In total, the mobile lab will be able to monitor more than 20 parameters automatically on site.

MOBILE LAB	
Ultra HTO	TOC, TC, TIC, COD, TN_b
Nitrificant Toximeter	Toxicity
ISE + standard addition	NH_4, NO_3, Na, K, Cd, Cl, F
Photometer	SO_4, PO_4, NO_2, NO_3, TN_b, TP, Fe, Al
Electrodes	pH, conductivity, redox
Weather station	Temperature, wind, humidity, air pressure, rainfall

The mobile lab is able to analyse the most important pollution sources directly on site – either in online-mode or by single measurements.

All analysers and sensors are part of one water cycle to enable the relevant reference of each parameter and

measurement. The cycle starts with the sample being taken through a submersible pump that is attached to a buoy. The submersible pump including the buoy is directly connected to the mobile laboratory container.



In addition, the mobile lab is equipped with state-of-the-art analysers and measurement methods in order to receive accurate and reliable monitoring data. The ultra high temperature oxidation (HTO) at 1,200°C works for instance without any catalysts and determines the total organic carbon (TOC) including particles within a few minutes. Usually, catalysts wear out during operation and may falsify results. Frequent checks and calibrations are the consequence resulting in additional costs. No use of catalysts means saving on operating costs, eliminating the risk of inaccuracy and minimising maintenance efforts. Moreover, LAR's QuickTOC is even able to accurately analyse the most difficult samples containing high loads of particles without clogging or blockages. The special injection unit is specifically developed for such applications. This online analyser is additionally equipped with further detectors and determines the chemical oxygen demand (COD) and total bound nitrogen (TNb).

The online toximeter determines toxic effects of pollutants on organisms using very sensitive bacteria that are cultivated directly within the unit. The biomass is constantly self-regenerating so that the analyser is ready to measure samples at any time. For each measurement only a small amount of the test organisms are used. The biomass culture within the fermenter is not contaminated. Since there is always enough bacteria it is possible to operate this nitrificant toximeter either in online mode as well as for the analysis of single samples. Usual toxicity tests have a duration of some tens of minutes or even hours. This analyser's response time is about 15 minutes.

Further methods and analysers allow the determination of single pollutants such as ammonia, sodium, potassium, cadmium, fluoride, chloride, nitrite, sulphate, and more. In addition to the water parameters the lab records the most important parameters of the environmental conditions including various weather parameters such as temperature, rainfall, wind or humidity. Hence, the project partners and local authorities receive full information about the meteorological conditions in addition to the water quality.

Depending on the samples` composition and requirements, the following sample taking systems may be used:

- The centrifugal separator (elimination of coarse contamination),
- the relay-controlled sample taking system by WaterSam (additional control samples or reserve samples), and
- the patented LAR Flow-Sampler (enables the clogging-free sample taking).

The unique stand-alone character and developed data transfer system of LAR, provides measurement results directly via internet to the authorities and partners. Authorities and project partners can use the results directly for further updates and evaluation.

The measuring container has an approximate size of 3 x 2 x 2 meters (length x width x height) and weighs less than 1 ton.

This mobile lab needs a short set-up time to be ready for operation on site.

Because of considerable differences both of the water level and of the conditions of the riparian zones, sampling has to be carried out by a special buoy which can be stored on the truck and easily positioned in the river.

A detailed listing of the equipment will be required.

7.3 Capacity Utilization

For purposes of project planning, we will assume that six months is required to prepare the first ML and acquire clients. Hence no sales are expected in this period. This could change based on equipment lead times and discussions with municipalities.

First year capacity (year 2 of the project) will be scheduled for one ML at 75% utilization. This will assume around-the clock operation when the equipment is installed.

Being mobile, the laboratory is applicable even to places that are difficult to access. Alongside rivers even problematic measurement points can be reached. No long transportation is necessary.

It is expected to relocate the mobile lab about 20 times per year. The measurement period per location could be between 1 and 2 weeks.

Additional ML's will be added based on need. It is currently planned to have a total of 4 units in the Baltic region.

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8 MANAGEMENT and KEY PERSONNEL

8.1 Structure

8.2 Key Personnel

For **LAR Process Analysers AG** (Germany) - http://www.lar.com/
Dr. Wolfgang Genthe, Head of Projects, **LAR Process Analysers AG**. Developed the ML.
Dr. Tatyana Karasyova,
Dipl.-Ing. Rafael Jechorek
Wladimir Morsakov, LAR Export Manager East Europe

for **Technical Partners International Inc.** (Canada) / **"TP Riga" SIA** (Latvia) - www.tpriga.lv

Ed Kalvins – Owner / Project Director. BASc - Chemical Engineering (University of Toronto, Canada) 40 years of Project Management, Manufacturing Management and Engineering Management experience in Canada and Latvia.

Dr. Antra Drivinya - Laboratory and R&D Manager. BSc Chemical Technology (Riga Technical University), M.Sc. Biology (University of Latvia), Ph.D., Pathological Science, Chiba University Graduate School of Medicine, Japan

Alvis Līdums – BA – Economics – Manufacturing, BA – Business Administration, MA – Public Administration (University of Latvia). Project Manager. Industrial Engineering and Project Management experience. Technical specialist.

Andris Pumpurs – B.Sc.Env and M.Sc.Env (University of Latvia). Environmental projects specialist. Management, personnel administration, environmental and project administration.

Anita Boldane – BA - Economics (University of Rezekne, Latvia). EU certificate in Project Management. Project Group Manager. Engineering services specialist. Project coordination with municipal institutions.

Aina Valtmane – BSc – Food Technology (Jelgava Agricultural University, Latvia). Environmental Specialist. Completes technical requirements and procedures for environmental impact assessments (EIA).

Ivars Grislis – BSc - Mechanical Engineering (Riga Polytechnic Institute, Latvia). BA - Economics (Riga Polytechnic Institute, Latvia). Senior Engineer. System maintenance specialist.

Raimonds Lilienfelds – BSc - Chemical Engineering (Riga Polytechnic Institute, Latvia). Manufacturing Processes specialist. Plant and project management.

Indra Sproge-Kalvina - BA - Management Studies (University of Latvia). Sales and customer service specialist.

Maris Ozols – BASc (Mohawk College, Canada). Installations Engineer. General management, production, mechanical installations. Paint line installations, production line installations, machinery design, project and production management. Equipment re-building, commissioning and Preventative Maintenance specialist.

Uldis Kurms – BA (Riga Technical University). Logistics specialist.

It is expected that TP personnel will be involved in a contract basis depending on need. Most will not be fully involved in the project but utilized where their experience is required.

9 DEVELOPMENT and EXIT PLANS

9.1 Objective

The objective of this project is to develop a business based on environmental services provided by the ML.

9.2 Development

The basic unit has already been developed by LAR Analysers AG. The objective now is to make the use of the ML a commercially viable activity.

TP will work closely with LAR to set up sustainable operations and service for these units.

In the beginning, the ML will be offered on a rental basis, and additional units provided as the business expands. Units will also be offered for sale, but it is expected that this will be difficult in the current economic climate.

Services will be offered in the Baltic region concentrating on Latvia and Estonia, but will be expanded to other Baltic Flows countries, and other EU countries requiring the same services.

9.3 Exit plan

Once the business has been established, it could be sold off to and environmental services company. However, the intention is develop the business.

9.4 SWOT Analysis

1. Strengths
   - LAR technology
   - the fact that LAR has already implemented the ML.
   - technical capabilities both at LAR in Germany and with TP in Latvia.
   - relatively low operating costs
   - relatively low wage rates.
   - TP network in government and with the municipalities

2. Weaknesses
   - finances
   - regulations “in the works”
   - supporting programs under development

3. Opportunity
   - unique concept
   - no established service providers

4. Threats
   - other unknown competition
   - budget restraints for clients because of economic or geopolitical considerations

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10 FINANCES

Finances are based on a firm quotation from LAR for LAR supplied equipment, but need to have firm pricing supplied for non-LAR related equipment. However, this is estimated as being 10% of the LAR quote. Based on LAR experience with their pilot projects, this is considered a good estimate.

The project involves commissioning four mobile units and is the basis of this proposal. This results in a profitable business venture. Financial estimates have also been provided if only one unit was commissioned. This is not a profitable business, but will cover all costs.

10.1 Use of Funds

1. Capital costs - Mobile Lab and equipment

01 QuickCODultra/TOCdiff., 1 stream, 230VAC	50,100
02 Reagent cabinet for QuickTOC/COD/TONb	2,500
03 Spare Parts kit - standard for QuickTOC/CODultra without TNb	1,685
04 Yearly Service Kit - standard QuickTOC/CODultra	1,078
05 Yearly Service Kit QuickTOC/CODultra - COD_o	162
06 QuickTOCnpo, TNTP	33,470
07 Operation material QuickTOC	1,605
08 Operation material QuickTNP for	1,954
09 Nitritox	38,000
10 Operating material for Nitritox REAGENTS KIT for 1 year	6,600
11 Operating material for Nitritox SPARE PARTS for 1 year	960
12 Ammonia analyser Ammonitor	15,000
13 Ammonitor operation material kit incl.	3,100
14 Automatic sampler.	4,000
15 Remote Control System	3,000
LAR Servises: Providing a car trailer; Installation of the equipment and starting-up; Training, etc.	45,000
TOTAL LAR equipment	208,214
Other equiment	20,000
TOTAL equipment	228,214
Contingency @10%	22,821
TOTAL equipment costs	251,035
BUDGET EQUIPMENT CAPITAL	250,000

2. Annual Maintenance and Spare Parts costs for equipment for one Mobile Lab

Annual operating costs	
04 Yearly Service Kit - standard QuickTOC/CODultra	1,078
05 Yearly Service Kit QuickTOC/CODultra - COD_o	162
07 Operation material QuickTOC	1,605
08 Operation material QuickTNP for	1,954
10 Operating material for Nitritox REAGENTS KIT for 1 year	6,600
11 Operating material for Nitritox SPARE PARTS for 1 year	960
13 Ammonitor operation material kit incl.	3,100
TOTAL	15,459
Contingency @10%	1,546
TOTAL operating costs	17,005
BUDGETED ANNUAL EXPENSES	18,000

3. Annual operating costs for one Mobile Lab

Operating Costs	**92,400**
Technician	**24,000**
Pocket money (by law)	**2,400**
Fuel - travel	**3,000**
Garage (heated)	**1,200**
Fuel - Generator for ML	**15,000**
Lodging for technician	**18,000**
Meals for technician	**10,800**
Maintenance and Spare Parts	**18,000**

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10.2 Sources of Income

1. Daily Charge-put rate calculation for 4 Mobile Lab project:

Costs:	per ML
Equipment (one time) costs:	250,000
Interest payments:	46,328
Financing fees / commissions for arranging financing):	8,750
	305,078
Annual operating and maintenance costs:	92,400
Annual personnel remuneration	45,300
Annual Overhead (office expenses)	8,046
Annual Marketing costs	3,175
LAR support costs	20,000
	168,921

Charge-out rate calculation

Assume equipment written off in 3 years, hence equipment cost	101,693
Other capital equipment (car, computers) written off in 5 years	13,440
Annual operating and maintenance costs per ML:	168,921
Simplified annual costs per ML:	**284,054**
Days per year @ 75% utilization	274
Direct costs per day	1,038
Margin @ 20%	208
Charge-out rate calculated	**1,245**
Charge-out rate used in budget	**1,900**
Sales commissions @10%	190
Client cost per day	**2,090**

2. Daily Charge-out rate calculation for a 1 Mobile Lab project:

Costs:	per ML
Equipment (one time) costs:	250,000
Interest payments:	178,375
Financing fees / commissions for arranging financing):	24,250
	452,625
Annual operating and maintenance costs:	92,400
Annual personnel remuneration	181,200
Annual Overhead (office expenses)	32,184
Annual Marketing costs	12,700
LAR support costs	20,000
	338,484

Charge-out rate calculation

Assume equipment written off in 3 years, hence equipment cost	150,875
Other capital equipment (car, computers) written off in 5 years	13,440
Annual operating and maintenance costs per ML:	338,484
Simplified annual costs per ML:	**502,799**
Days per year @ 75% utilization	274
Direct costs per day	1,837
Margin @ 20%	367
Charge-out rate calculated	**2,204**
Charge-out rate used in budget	**1,900**
Sales commissions @10%	190
Client cost per day	**2,090**

A charge-out rate of €2,090 per day has been selected for budgeting purposes for the following reasons:

1. should only one mobile lab be used, all costs will be covered.
2. entering the market with a high charge-out rate leaves room to decrease charges if the market calls for it.

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3. Income from sale of services:

Six months	-	Ordering & assembling lab, training personnel, sales and marketing work.
Year 2	-	income from 1 unit, 75% utilization
Year 3	-	income from 2 unit, 75% utilization
Year 4	-	income from 3 units, 75% utilization
Year 5	-	income from 4 units, 75% utilization

1. 4 ML Scenario

LAR Mobile Lab - Annual Projections
Euro

	5 Year Sales Forecast (€)				
	Start	Year 2	Year 3	Year 4	Year 5
Services Income / Ienākumi	**0**	574,750	1,149,500	1,724,250	2,299,000
	-				
Water monitoring services - unit 1	-	574,750	574,750	574,750	574,750
Water monitoring services - unit 2	-	-	574,750	574,750	574,750
Water monitoring services - unit 3	-	-	-	574,750	574,750
Water monitoring services - unit 4	-	-	-	-	574,750

2. 1 ML Scenario

LAR Mobile Lab - Annual Projections
Euro

	5 Year Sales Forecast (€)				
	Start	Year 2	Year 3	Year 4	Year 5
Services Income / Ienākumi	**0**	574,750	574,750	574,750	574,750
	-				
Water monitoring services - unit 1	-	574,750	574,750	574,750	574,750
Water monitoring services - unit 2	-	-	-	-	-
Water monitoring services - unit 3	-	-	-	-	-
Water monitoring services - unit 4	-	-	-	-	-

Provisions have been made for six months preparatory work once financing has been received for ordering equipment and firming up contracts for the first ML. Additional ML's will not be ordered until orders have been confirmed for previous units.

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10.3 Financial Forecasts

1. 4 ML Scenario

LAR Mobile Lab - Annual Projections

	5 Year Forecast (€)				
	Start	Year 2	Year 3	Year 4	Year 5
Income					
Services Income / Ienākumi	0	574,750	1,149,500	1,724,250	2,299,000
Capital In or Loans	500,000	200,000			
Capital In or Loans repaid	-		-300,000	-400,000	
Total Income	**500,000**	**774,750**	**849,500**	**1,324,250**	**2,299,000**
Capital Purchases / Kapitāla Iepirkumi	317,200	250,000	250,000	250,000	-
Expenses / Izdevumi					
Personel					
Salaries & Personnel Expenses / Atalgojums	90,600	181,200	181,200	181,200	181,200
Commissions on Sales (10%)		57,475	114,950	172,425	229,900
Operating Costs	-	92,400	184800	277200	369600
Office / Birojs					
- Rent / Īre	4,200	8,400	8,400	8,400	8,400
- Maintenance Costs / Uzturēšana	1,350	2,700	2,700	2,700	2,700
- Communications / Sakari	1,140	2,280	2,280	2,280	2,280
- Subscriptions / Abonementi	192	384	384	384	384
- Office supplies / Biroja Izdevumi	210	420	420	420	420
- Bank Charges and Fees	300	600	600	600	600
- Legal fees	4,500	9,000	9,000	9,000	9,000
- Transportation costs/ transporta izmaksas	3,000	6,000	6,000	6,000	6,000
Unanticipated / Neparedzētie izdevumi	1,200	2,400	2,400	2,400	2,400
Marketing / Marketings	6,350	12,700	12,700	12,700	12,700
Financing Fees	25,000	10,000	-	-	-
Interest Expenses / Procenti par aizdevumu	20,313	105,000	60,000	-	0
Total Overhead	**158,355**	**490,959**	**585,834**	**675,709**	**825,584**
Total Cash Out	**475,555**	**740,959**	**835,834**	**925,709**	**825,584**
Surplus / Defecit	**24,446**	**33,791**	**13,666**	**398,541**	**1,473,416**
Cash Flow	24,446	33,791	13,666	398,541	1,473,416
Opening Balance	-	24,446	58,237	71,903	470,444
Closing Balance	**24,446**	**58,237**	**71,903**	**470,444**	**1,943,860**

The project will pay back in year three after the start-up for the four ML scenario, or year four in the one ML scenario.

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2. 1 ML Scenario

LAR Mobile Lab - Annual Projections

	5 Year Forecast (€)				
	Start	Year 2	Year 3	Year 4	Year 5
Income					
Services Income / Ienākumi	0	574,750	574,750	574,750	574,750
Capital In or Loans	485,000	0			
Capital In or Loans repaid	-	-125,000	-125,000	-150,000	-85,000
Total Income	**485,000**	**449,750**	**449,750**	**424,750**	**489,750**
Capital Purchases / Kapitāla Iepirkumi	317,200	-	-	-	-
Expenses / Izdevumi					
Personel					
Salaries & Personnel Expenses / Atalgojums	90,600	181,200	181,200	181,200	181,200
Commissions on Sales (10%)		57,475	57,475	57,475	57,475
Operating Costs	-	92,400	92,400	92,400	92,400
Office / Birojs					
- Rent / Īre	4,200	8,400	8,400	8,400	8,400
- Maintenance Costs / Uzturēšana	1,350	2,700	2,700	2,700	2,700
- Communications / Sakari	1,140	2,280	2,280	2,280	2,280
- Subscriptions / Abonementi	192	384	384	384	384
- Office supplies / Biroja Izdevumi	210	420	420	420	420
- Bank Charges and Fees	300	600	600	600	600
- Legal fees	4,500	9,000	9,000	9,000	9,000
- Transportation costs/ transporta izmaksas	3,000	6,000	6,000	6,000	6,000
Unanticipated / Neparedzētie izdevumi	1,200	2,400	2,400	2,400	2,400
Marketing / Marketings	6,350	12,700	12,700	12,700	12,700
Financing Fees	24,250	-	-	-	-
Interest Expenses / Procenti par aizdevumu	20,125	72,750	54,000	31,500	0
Total Overhead	**157,417**	**448,709**	**429,959**	**407,459**	**375,959**
Total Cash Out	**474,617**	**448,709**	**429,959**	**407,459**	**375,959**
Surplus / Defecit	**10,383**	**1,041**	**19,791**	**17,291**	**113,791**
Cash Flow	10,383	1,041	19,791	17,291	113,791
Opening Balance	-	10,383	11,424	31,215	48,506
Closing Balance	**10,383**	**11,424**	**31,215**	**48,506**	**162,297**

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