AFRICAN BEVERAGE INDUSTRY WATER SAVINGS INITIATIVE (ABIWSI)

ABIWSI

Promotion of efficient utilisation of water and reduction of water discharge from African beverage industries to contribute to the fulfilment of the African Water Vision

AFRICAN BEVERAGES INDUSTRIES WATER SAVINGS INITIATIVE (ABIWSI)

Background

Although Africa is endowed with abundant water resource, distribution and availability for use varies widely. The African Water Development Report (AWDR) underlines that the challenge for Africa is to reverse the present trends of rapid water resources degradation through an integrated approach to land and water resources management within a holistic framework. A number of African countries are already facing water shortage owing to natural and human factors and further exacerbated by high population growth. Examples of such factors include industrial and agricultural pollution; disposal of sewage and municipal solid waste into storm drains; and uncontrolled leaching of toxic materials from dumpsites into water bodies. Often, industrial waste is being discharged into rivers and lakes without treatment. The consequence is that concentration of waste exceeds the ability of water bodies to assimilate them resulting in lack of access to clean water and widespread waterborne and water-based diseases.

Countries use diverse types of water such as rainwater, surface water or groundwater and polluted water. As much as the type of water that is being used differs within the region, the impacts of goods and services on freshwater systems can lead to local water depletion and pollution. Assessing the water footprint of a product, community or business is an innovative tool to measure the location, time, volume and type of water that is used to produce the goods and services consumed by communities or produced by business. Looking at the production side, water is the principal raw material for beverage industries.

OBJECTIVE

The broad objective of this initiative is to promote efficient utilization of water and reduction of water discharge from African beverage industries and through this contribute to the fulfilment of the African Water Vision.

African Brewery Sector Water Saving Initiative

The availability of water in adequate quantity and quality determines the viability of these industries. The potential to reduce the water consumption in these industries in Africa is considerable, considering that they exceed international bench marks for water consumption significantly. This also indicates that there are opportunities for Cleaner Production measures to reduce the water consumption in these industries. Based on the outcome from a sectoral study (which showed that African breweries are consuming 75-200% of water above the global bench-mark), a framework analysis and an in-plant assessment that were conducted under the African Brewery Sector Water Saving Initiative (ABREW) in four African countries (Ethiopia, Ghana, Morocco and Uganda) and in the context of the African Water Vision, the African Beverage Industry Water Saving Initiative (ABIWSI) was formulated.

AFRICAN BEVERAGES INDUSTRIES WATER SAVINGS INITIATIVE (ABIWSI)

ABIWSI's specific objectives

- Building technical capacities of African beverage industries, industry support centres and water management institutions on integrating cleaner production approaches.
- Promoting water-demand side management and promoting Public-Private Partnerships (PPPs), which facilitate the proactive engagement of African beverage industries in improving their water utilization and in reducing their waste discharges.
- Contributing to dialogue on required policy and strategy reorientation for more sustainable patterns with regard to water management and utilisation.

Implementation of ABIWSI

The initiative is currently being implemented in eighteen companies in seven countries (Egypt, Ethiopia, Kenya, Rwanda, Tanzania, Uganda and Zimbabwe) in collaboration with the National Cleaner Production Centres. The participating breweries were able to reduce their water consumption from an average of 16-22 hL water /hL beer to 8-11 hL water/hL, and participating soft drinks companies have reduced the water consumption to an average of 4.5 hL water /hL beverage.

It is envisaged to up-scale the initiative and to extent it to the entire region – this publication of fact sheets aims to disseminate the results within the region and thus to support market uptake, verification, development and application of technical standards, identification of and collaboration with users as well as identifying potential partners and sources of finance for continued up-scaling of the initiative within the region. The results will also be promoted through the Resource Efficient and Cleaner Production Network (RECPnet) that brings together National Cleaner Production Centres and RECP promoting institutions.

BEDELE BREWERY SHARE COMPANY

General Information

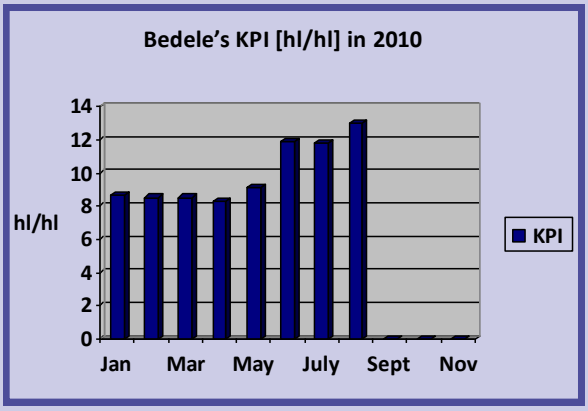
Bedele Brewery was established in 1993 in the South Western of Ethiopia, Oromia Region, Illubabor Zone Bedele City, 500km from Addis Ababa.

The main market for Bedele is the domestic mainly in the north west, west, south, central and south west of Ethiopia. Beer is also exported to USA, Canada, Australia, Israel and Sudan. The factory is owned by the Government of Ethiopia, under the control of the Federal Democratic Republic of Ethiopia Privatization and Public Enterprise Supervising Agency

At the moment Bedele has a production capacity of 250.000 hl/yr.

Bedele has the following management systems in place: ISO:9001:2000, ISO 14001-2004.

Bedele's KPI [hl/hl] monthly average was 7.25 in 2010



Outputs

The main output is:

Beer: 250.000 hl/yr (in 2010)

Water use and effluent treatment

Effluent treatment methods: Currently Bedele is treating its effluent from the production process and finally discards their effluent in the Nile. Since Ethiopia hasn't put a Polluter Pays Principle in place, Bedele is not paying for discarding their effluent.

BEDELE BREWERY SHARE COMPANY

Water awareness and reduction measures

In order to reduce their water consumption, Bedele has taken the following measures:

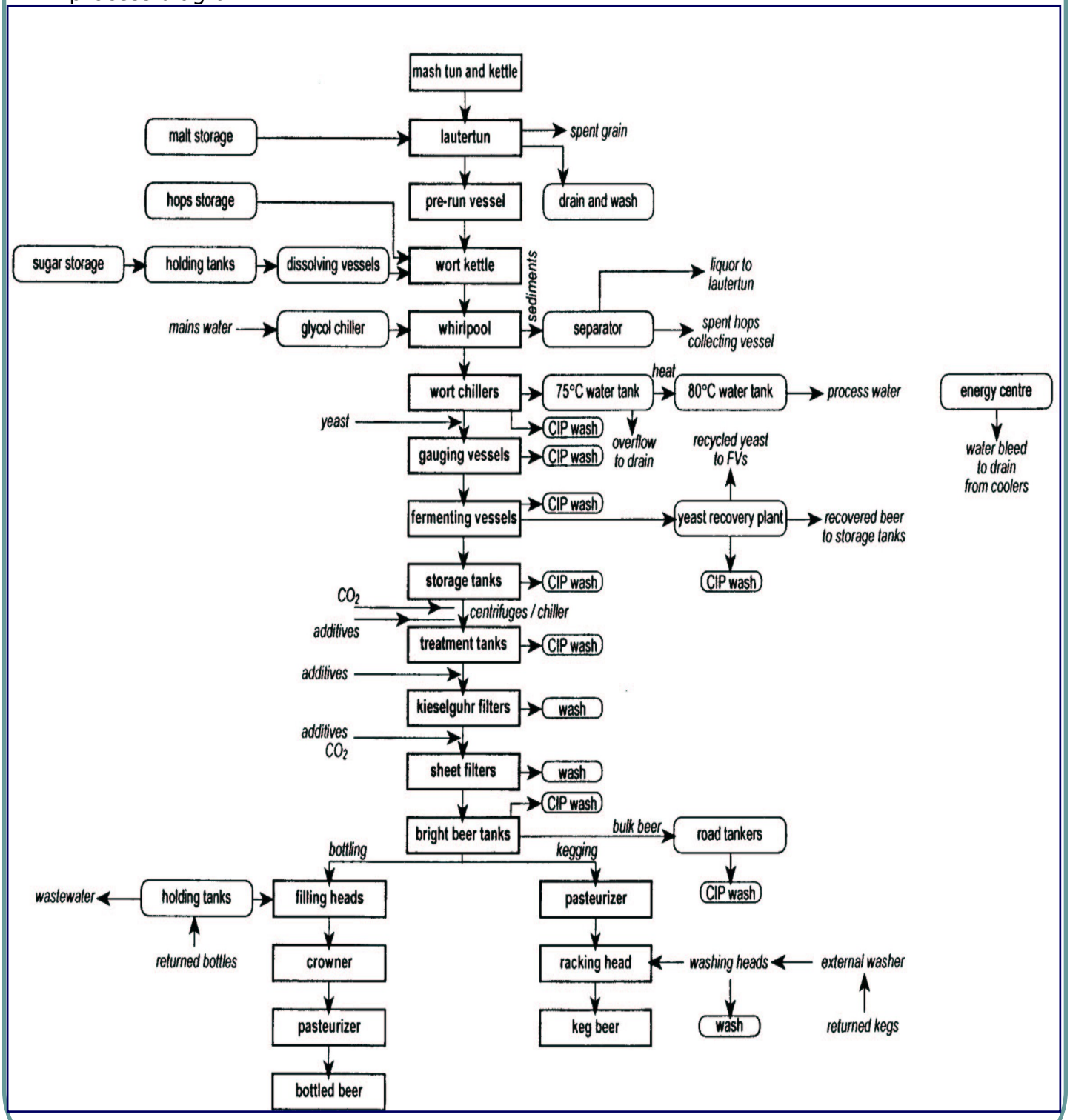
- Maintenance of the water dispensing line and standardization of all water flow meters with the initial measurement was carried.
- CO2 plant's water draining from compressor was identified and simple pipeline was constructed to the main cooling tower reservoir to retain water.
- The brewery has two wort cooling system the old and new one, the new due to minor technical failures was non functional for the last 10 months and this problem was solved by the brewery technical team and the new computer aided cooling system was functional since January. The two cooling systems have 100% water saving difference.
- The brewery has its own water treatment and dispenser system. During dispensing for production there is pneumatic flow sensor to add or stop additional pumps to meet the minimum water pressure requirement but this system was not functional for long period of time as a result the water was supplied for production with two pumps continuously. Identifying this, the technical team adjusted the system and put the control mechanism with the necessary document together with the operator's training. The result is satisfactory that 90% of the time the dispensing is by single pump, meeting the minimum water pressure requirements
- The necessary signs and posters were placed near potential water draining sites with necessary training to all the personnel.

Impact of ABIWSI

After implementation of ABIWSI the average KPI of 15.1 hl/hl reduced to an average of 9.97 hl/hl by the end of August 2010.

Specific process information

Bedele is the one of the largest beer producers in Ethiopia. Underneath is a global process diagram.



CROWN BEVERAGES LIMITED

General Information

Crown Beverage Limited was established in 1987.

The main market for Crown is local. Crown currently employs approximately 402 people and as a production installed capacity of 1,468,800 hl/yr (out-put for 2010 was about 64.6% of installed capacity). A growth of 15% was anticipated in 2011.

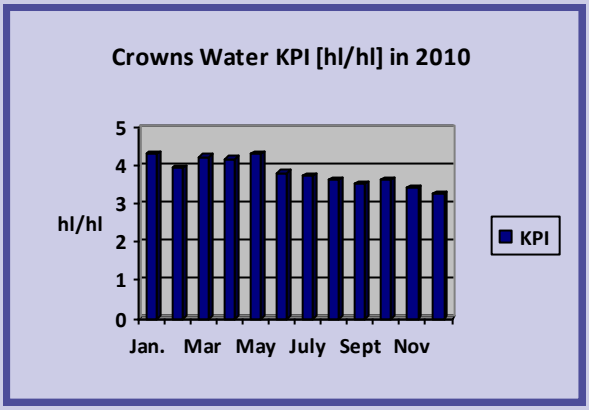
The yearly turn-over is approximately 55.7 Billion Ugandan Shilling/year.

Crown has the following management systems in place: Quality, Information (ERP), Security Health and Safety.

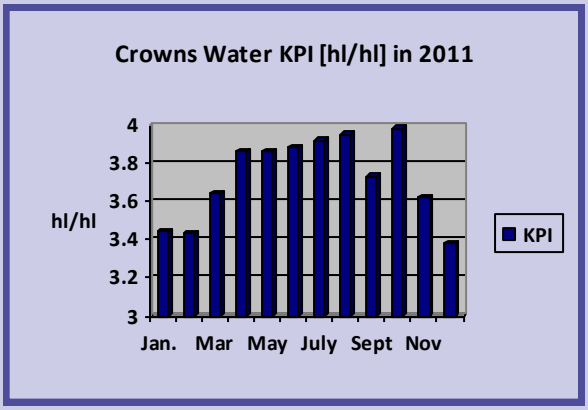
The type of management systems under

development: Environmental Management System (ISO 14001).

Crowns Water KPI [hl/hl] average in 2010 was 3.79



Crowns Water KPI [hl/hl] average in 2011 was 3.71



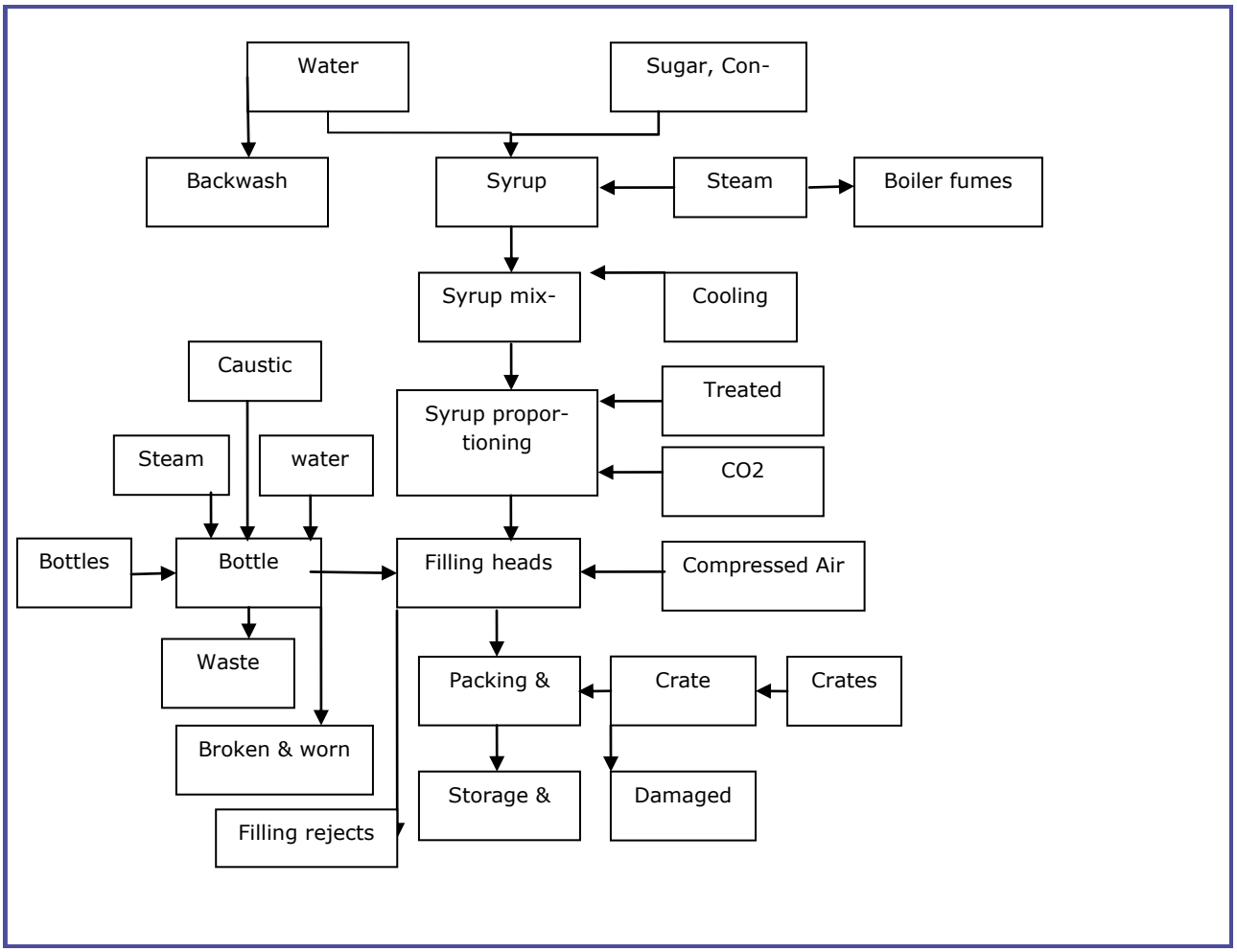
Major inputs	2010	2011	Remarks
Steam (Boiler Fuel) Litres	1,119,389	1,144,150	
Water (hl)	3,603,730	3,869,270	
Electricity (Kwh)	3,970,472	4,262,353	
Sugar (Kgs)	13,016,406	14,511,026	
Concentrates (Units)	25,531	28,261	
Carbon dioxide (Kgs)	1,429,757	1,062,300	New beverage processor was installed.
Caustic Soda (Kgs)	254,970	342,850	

Major outputs	2010	2011	Remarks
Carbonated soft drinks (hl)	948,333	1,044,170	
Waste water (hl)	2,054,000	2,036,000	Estimated
Broken & worn out glass (Kgs)	32,533	116,398	Major replace-ment of worn-out
Backwash water (hl)	108,000	109,900	Recycling started Dec 2011

CROWN BEVERAGES LIMITED

Specific process information

Crown is one of the larger soft-drink producers in Uganda. Below is the Crown process diagram



CROWN BEVERAGES LIMITED

Water use and effluent treatment

Source of process water: National Water and Sewerage Corporation.

Effluent treatment methods: Lucas 1, Aerobic reactor, construction in good progress.

The main problem the company is facing with their effluent: Construction of a waste water treatment plant which is very expensive.

The following measures are taken to reduce the impact of the effluent on the environment: Reduction of waste from source, management of waste streams by segregation of solid and liquid wastes, highly acidic into septic tank, highly alkaline caustic into reclamation tanks. The solid wastes are collected and taken to the designated city council damping site, however this does not include the broken and worn out glass plus the plastic crates which are taken for recycling.

Benefits

After implementation of ABIWSI the average KPI of 4.2 hl/hl reduced to an average of 3.7 hl/hl for the year 2011, and at that average KPI the savings in terms of water only for that year is 52,208,500 litres (USD 40,513).

Water awareness and reduction measures

In order to reduce their water consumption, Crown has taken the following measures:

- Continuous monitoring of leaks and stopping them as soon as noticed.
- Displaying of photos/ Videos of areas of loss, and calling for immediate rectification.
- Sensitization of the workers.
- Put flashguns on all the cleaning hose pipes.
- Recirculating cooling water of sugar dissolving pump.
- Recovery of bottle washer condensate.
- EMS and Eco-benefit programmes are in progress.
- Automation of the bottle washer for both water and steam control.
- Construction of 100m3 Rain Water Harvest Tank, so far 600,000 litres harvested.
- Reduction of water usage in toilets by reducing the volume per flush.
- Water use awareness campaign programme: Daily water KPI monitoring and communicating of the results in level 1 meetings at start of the production.
- Awareness among different management levels (top, operational, supervisory) in the company: The water KPI is circulated on daily basis and emphasis to keep within the set targets. Also weekly KPIs for different materials water inclusive are discussed in the top management staff meeting.
- Effluent discharge costs: Repair costs for drain channels and covering gratings but exact amount could not be established.

The main focus of the company's Corporate Social Responsibility (CSR) programme put emphasis on social environmental and economic sustainability. Examples of the Company's CSR-programme on water are: Making proper trenches to ensure no stagnation of both the effluent and the storm waters. Separation of highly acidic and highly alkaline discharges from the effluent channel which dis-charges into the swamp.

DASHEN BREWERY P.L.C

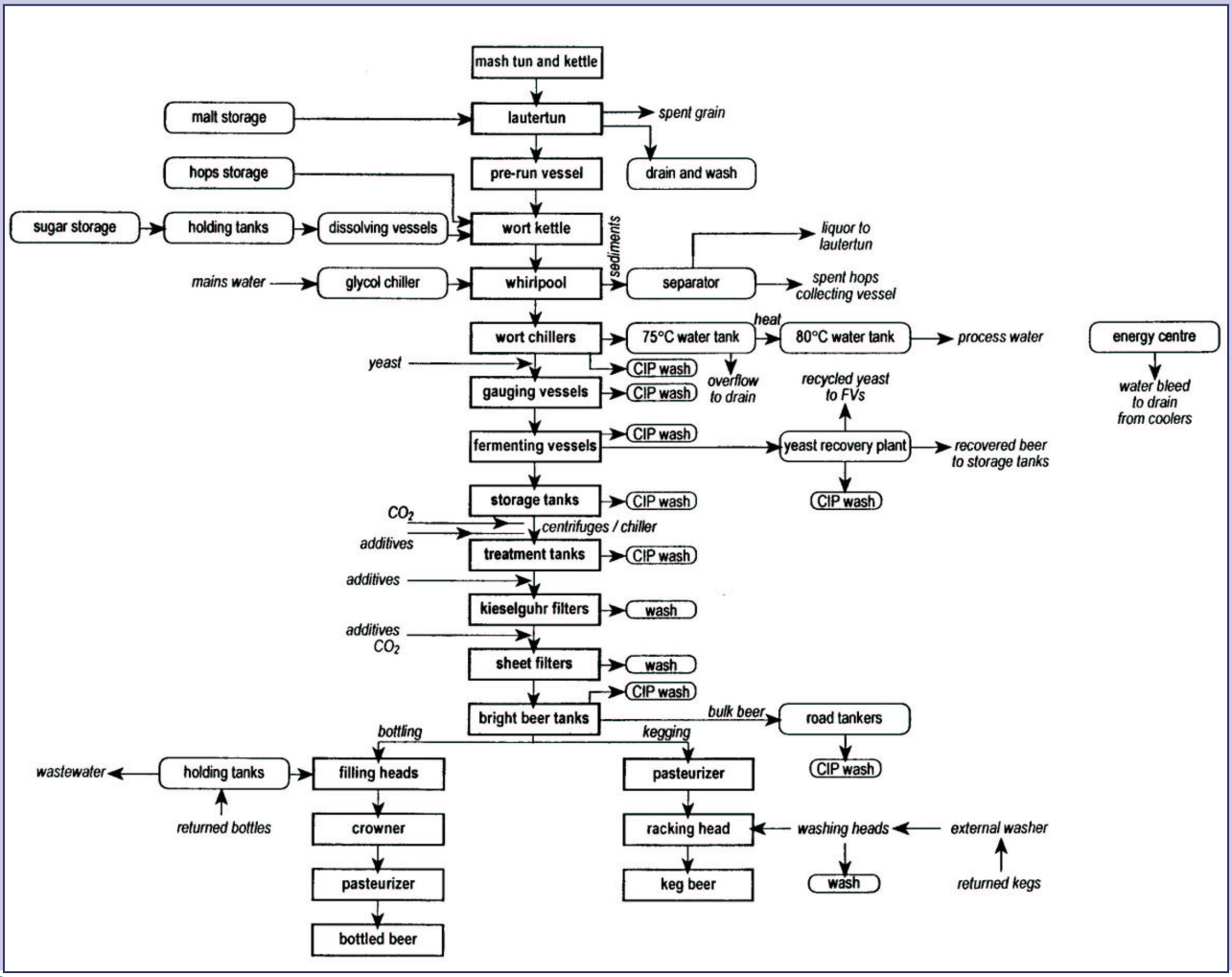
General Information

Dashen Brewery lies 750 km north of the capital Addis Ababa.

The factory is owned by the Government of Ethiopia, under the control of the Federal Democratic Republic of Ethiopia Privatization and Public Enterprise Supervising Agency.

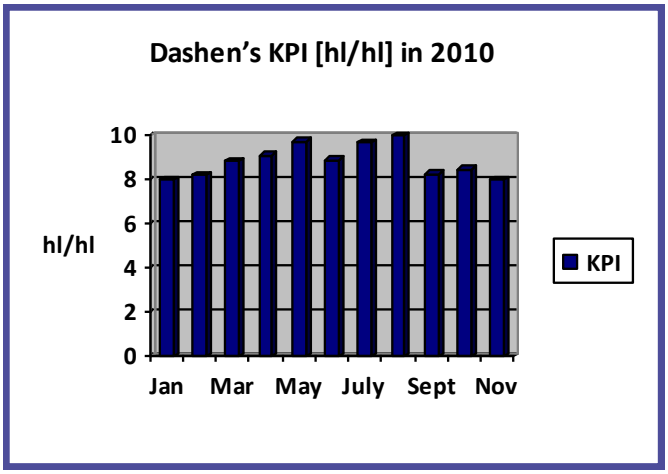
Specific process information

Dashen is the one of the larger Beer-producers in Ethiopia. Underneath is a global process diagram.



DASHEN BREWERY P.L.C

Dashen's KPI [hl/hl] monthly average was 8.81 in 2010



Water awareness and reduction measures

In order to reduce their water consumption, Dashen has taken the following measures:

- Mass and efficient production
- Elimination of leakages
- Proper usage of condensate water for boiler feed
- Monitoring of blow down rate of boilers
- Use water from bottle washer for crate washing
- Reduction of back wash frequencies of sand filters and carbon filters

Impact of ABIWSI

In 2010 the KPI on water consumption varied quite substantially, ranging from 7.96 hl/hl to 9.69 hl/hl.

DELTA BEVERAGES

General Information

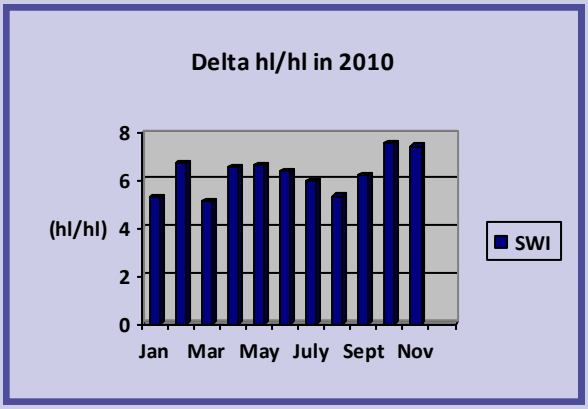
Delta Lagers was established in 1898 in Harare, Zimbabwe as the Salisbury Lager Beer Brewery and Ice Factory Company.

Main market for Delta: Northern Region of Zimbabwe

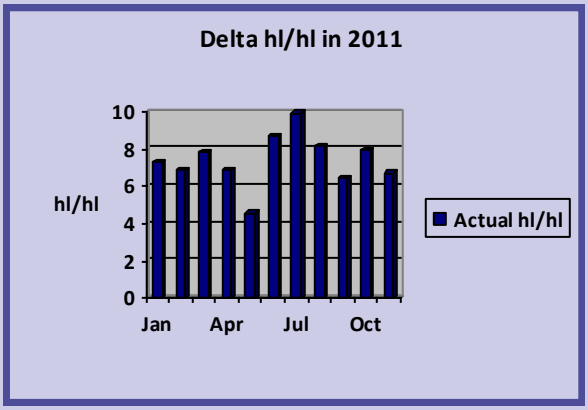
Delta Lagers has SABMiller as a 36% shareholder amongst other shareholders and is quoted on the Zimbabwean Stock Exchange.

At the moment Delta Lagers employs 426 people and currently has a production capacity of 1.3 mln hl/yr. A growth to approximately 2mln hectoliters is anticipated after completion of the new line in August 2012.

Delta SWI [hl/hl] monthly average was 6.29 in 2010



Delta hl/hl actual monthly average was 7.35 in 2011



Inputs/ Outputs

Inputs: Marley, Malt and Water

Outputs: Beer: 1.14 mln hl/yr (in 2010)

Inputs: Marley, Malt and Water

Outputs: Beer:1.3 mln hl/yr (2011)

Water awareness and reduction measures

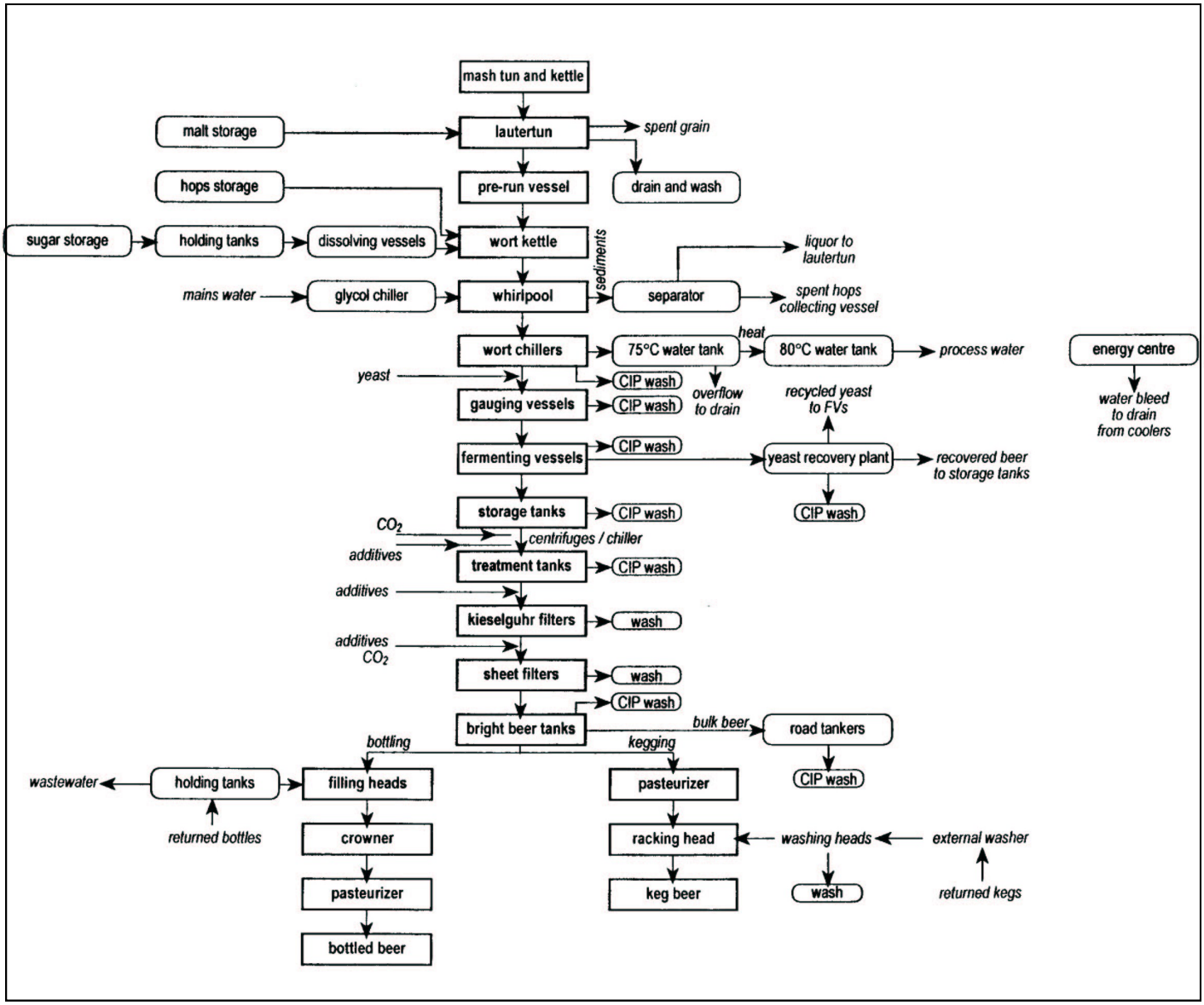
In order to reduce their water consumption, Delta Southerton Plant has taken the following measures:

- Training of critical resource personnel
- Sectional metering
- Investment in the recovery and reuse of treated waste water
- Continuous monitoring of the water consumption
- Installation of overhead water system to quickly identify leaks
- Installation Condensate recovery system
- Leak detection and tracking system
- Investment in a 42000bottles /hr line commissioning set for September/October 2012
- To decommission line 2 a 1992 Krones line which is a major water consumer in September 2012

DELTA BEVERAGES

Specific process information

Delta Lagers is the largest beer-producer in Zimbabwe. Underneath is a global process diagram.



HARAR BREWERY SHARE COMPANY (HBSC)

General Information

Harar Brewery Share Company (HBSC) was established in 1984 in Harar, 515 km from the capital Addis Ababa.

The main market for HBSC is the domestic mainly in the eastern, western and central of Ethiopia. The products of the brewery are also exported to USA, Canada, Australia and Sudan. Since June 2011 the factory is owned by Heineken International.

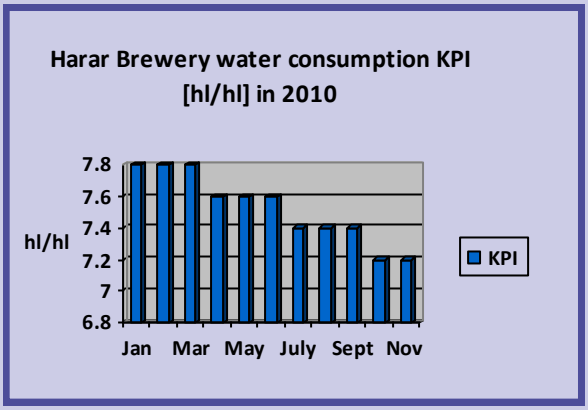
HBSC currently has 657 permanent employees and has a production capacity of 387,000 hl/yr. The production growth is anticipated to 429,000 Hl in 012/2013.

The yearly turn-over is approximately 364,608, 675.82 Birr/year

HBSC has the following management systems in place: ISO-22000-2005, ISO 14001-2004, three times National Green Award winner, and in 2010- Ethiopian Quality Award for its leadership, business and environmental performance, enhancement of quality, corporate social responsibility and citizenship.

The company has fully implemented integrated information management system.

Harar Brewery water consumption KPI [hl/hl] in 2010



Inputs/Outputs

Major inputs

Malt : 5,039,100 kg/yr

Yeast : 300,000kg/year

Water : 720 hl

Major outputs are:

Beer : 300.000 hl/yr

Yeast : 600,000 kg/yr

CO2 : 25,560 l/yr

Effluent : 1,860,000 hl/yr

Package material : 129,078 kg/yr

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	2011 Average
KPI	7.8	7.8	7.8	7.6	7.6	7.6	7.4	7.4	7.4	7.2	7.2	7.1

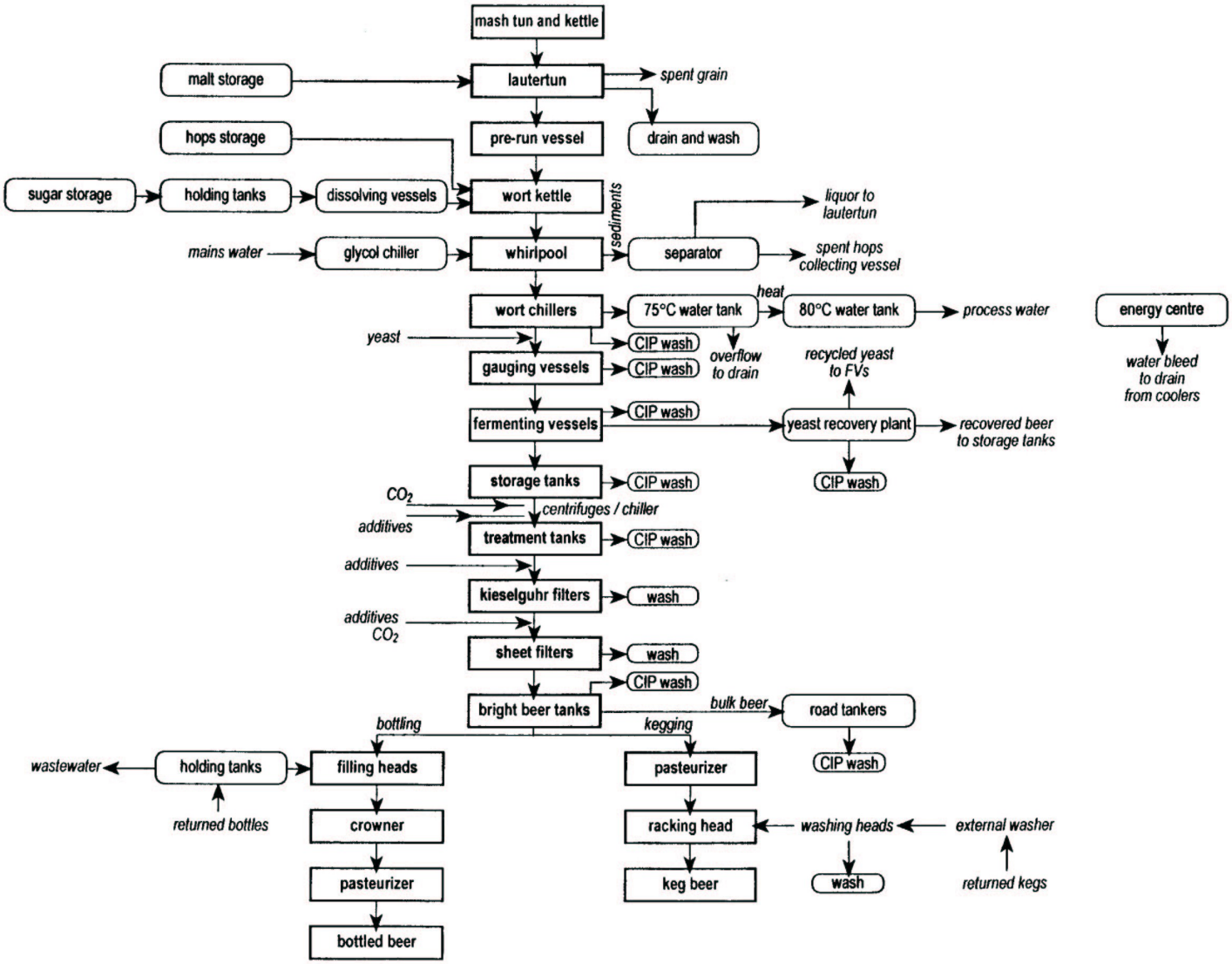
HARAR BREWERY SHARE COMPANY (HBSC)

Specific process information

The brewery uses spring water, 100% barley malt, brewery's yeast and hops for its production and produces three different types of brands.

1. Harar lager beer alcoholic content of 4.25%
2. Hakim stout beer alcoholic content of 5.5%
3. Harar sofi (non-alcoholic malt drink) and Lemon Flavored sofi

Below is the process diagram of HBSC



HARAR BREWERY SHARE COMPANY (HBSC)

Water use and effluent treatment

Harar Brewery uses water from Hakim gara spring, located near the premises, and supplements this with water it pumps from Finkile, located 33 km from the site. Since the water is extracted form a spring and bore whole, it is not being paid for.

The company has a waste water treatment plant to treat its effluent. The treatment plant has one primary settling tank, one biological filter, two secondary settling tank, one sludge tank and six sludge drying beds.

The main problems the company is facing with its effluent treatment:

- High level of COD and BOD load due to excess yeast spent released to the effluent.
- The efficiency of the effluent treatment with the growth of the production capacity.
- Maintenance of the waste water treatment plant.

Benefits

After implementation of ABIWSI the average KPI of 8.08 hl/hl reduced to an average of 7.1 hl/hl by the end of 2011.

Other benefits obtained after the start of the ABIWSI:

- Improved utilization of resources like furnace oil, sanitation and water treatment chemicals, energy, product loss, bottle breakage and etc.
- Reduction of pollution at the source and saving resources (improved BOD5 COD and TDS)
- Benefits from conservation: spring water yield increased from 30% to 60% and reduced treatment costs.

Water awareness and reduction measures

In order to reduce water consumption, the company has taken the following measures:

•Training was given to all the breweries employees to raise general awareness on water usage.

•Identifying water leakage and wastage areas.

•Preventing leakage and wastage of water by preventive and corrective maintenance.

•Installing water meter in production, boiler and water treatment plants to monitor efficient utilization of water.

Using standard lime for water treatment to decrease water wastage during treatment of water.

The main focus of the companies Corporate Social Responsibility (CSR) programme put emphasis on social environmental and business sustainability.

Examples of the Company's CSR-programme are:

- Supply of pure water for the community in Finkele.
- Construction of health centre at Finkele (water source area)
- Afforestation of Hakim Gara (spring water source area)
- Beautification of road sides of Harar and Dire Dawa town.
- Construction of asphalt road in Harar town.
- Construction of a recreation centre Harar town.
- Construction of 13 Km Rural road from Haramya university up to Water source area

META ABO BREWERY SHARED COMPANY

General Information

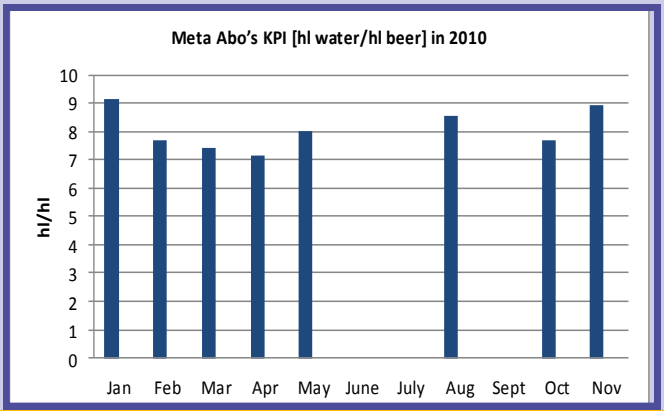
Meta Abo Brewery was established in 1967 and is located in Sebata, 27 km from Addis Ababa.

While the majority of Meta lager beer produced is locally distributed, a considerable size is also exported to the USA, Canada, Australia, Israel and the Sudan and has generated a remarkable feedback. Meta Abo was owned by the Government of Ethiopia, under the control of the Federal Democratic Republic of Ethiopia Privatization and Public Enterprise Supervising Agency until the end of 2011.

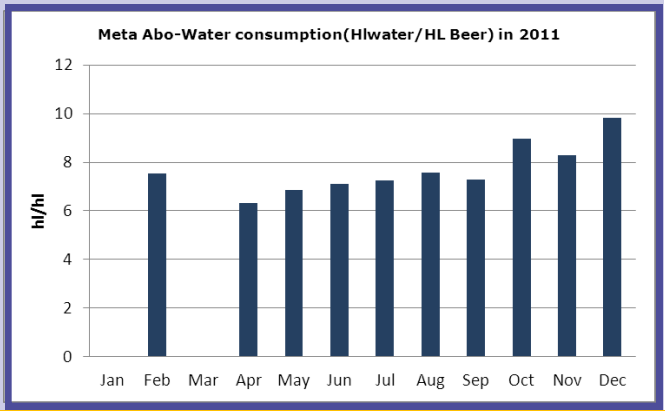
During this time, Meta Abo employed 797 people and has produced 363.567 hl in 2010. A growth to 620.000 hl is anticipated for the near future.

Meta Abo has the following management systems in place: ISO:9001:2008, ISO 14001:2004

Meta Abo's KPI [hl water/hl beer] monthly average was 8.07 in 2010



Meta Abo's KPI [hl water/hl beer] monthly average was 7.70 in 2011



Input/Outputs/Packaging materials

Inputs		Outputs		Main consumable packaging materials (*in pieces*)	
Malt (*The brewery uses 100% barley malt. No Adjunct is used)*	6,965,000 kg/yr	Beer	363.567 hl/yr (in 2009/2010 budget year)	Paper Label	33,740,000
Steam	6300 kg (for the production of 100	Yeast	N/A	Aluminum foil	637,000
		CO_2	900ton/yr	Crown corks	8,661x7,200
		Effluent	N.A		

META ABO BREWERY SHARED COMPANY

Water use and effluent treatment

The company uses spring water in the brewing process where water is also used for services. In order to reduce the release of waste water, fulfill the brewery's environmental, social and moral obligation in all operations of the brewery and to enhance efficient water utilization Meta Abo has started a water saving initiative. As a result of this initiative, extravagant water usage and high water consumption in the brewery has been reduced. On the same token the awareness of employees to reduce water has increased. Since the water is extracted from a spring and well, it is not being paid for.

Effluent treatment methods:

Since Ethiopia has not put a Polluter Pays Principle in place, Meta Abo is not paying for discarding their effluent. However, the brewery uses waste water treatment lagoons to reduce pollution load.

Major problems the company is facing with the effluent are:

- Unable to meet the national effluent discharge standard, though there are a lot of improvements made since the implementation of ISO 14001:2004 Environmental Management System since 2005.
- Financial constraint and high investment need to install efficient waste water treatment plant.

The following measures are taken to reduce the impact of the effluent on the environment:

- Using lagoon system to reduce the amount of effluent pollutant released to the environment.
- Regular and standardized management of wastes according to ISO 14001:2004 requirements.
- Awareness creation among the employees of the brewery how to handle wastes and reduce them at the source.

Water awareness and reduction measures

In order to reduce their water consumption, Meta Abo has taken the following measures:

- Creation of awareness and ensuring commitment of the top management team in water saving.
- Formation of water saving team.
- Identification of the major stakeholders of the brewery.
- Communicating the major stake-holder to work with the brewery in water saving.
- Developing water saving detail proposal.
- Implementing the water saving proposal.

The main focus of the company's Corporate Social Responsibility (CSR) programme put emphasis on social environmental and economic sustainability.

Examples of the Company's CSR-programme on water are:

- Supplying water for free
- Supplying electric power

No waste water is reused in the production process.

After implementation of ABIWSI the average KPI has dropped from an average of 12.76 hl/hl in 2009 to 8.05 hl/hl in 2010.

NATIONAL ALCOHOL AND LIQUOR FACTORY (NALF)

General Information

NALF was established in 1920 in Sebeta. In 1955 a branch opened in Mekanisa and in 1973 in Addis Ababa. NALF is divided into four branches Maichew, Mekanisa, Akaki and Sebeta. The Mekanisa and Akaki branches produce pure alcohol, whereas the Maichew branch produces only bottled alcoholic beverages. However, Sebeta is the only branch having both the distillery and bottling sections. Currently the factory uses comparatively old technologies both in distillery and bottling sections.

The national alcohol and liquor factory is an alcoholic beverages producing factory in addition to pure alcohol and denatured alcohol holding nearly 60% of the market. Currently NALF has launched a five year expansion project with nearly 400 million birr.

Products of NALF alcoholic beverages: Baros dry gin, Double ouzo, Ouzo red label, Supermint liquer, Orange liquer, Coffee liqueur, Bitter, Fernit digestive, Pernoud, Apperetif, Cognac, Lemmon liquer, Brandy. In addition the company delivers pure alcohol and denatured alcohol for private and governmental organizations. NALF currently employs approximately 500 people.

A growth of 5% increase in production capacity is anticipated in 2011.

The yearly turn-over is over 100 mln Bir/year.

NALF has the following management systems in place: ISO 9001-2008.

Type of management systems under development: ISO 14001-2004 (EMS), Business process re-engineering.

Inputs/outputs

Major inputs	kg/LT produced alcohol
Molasses	6.6
Furnace oil	0.6
Yeast	0.000023
Sulphuric acid	025
Dap	0.0118
Other inputs for the production of 100 hl of	
Steam	3000
Water	3.6 M^3

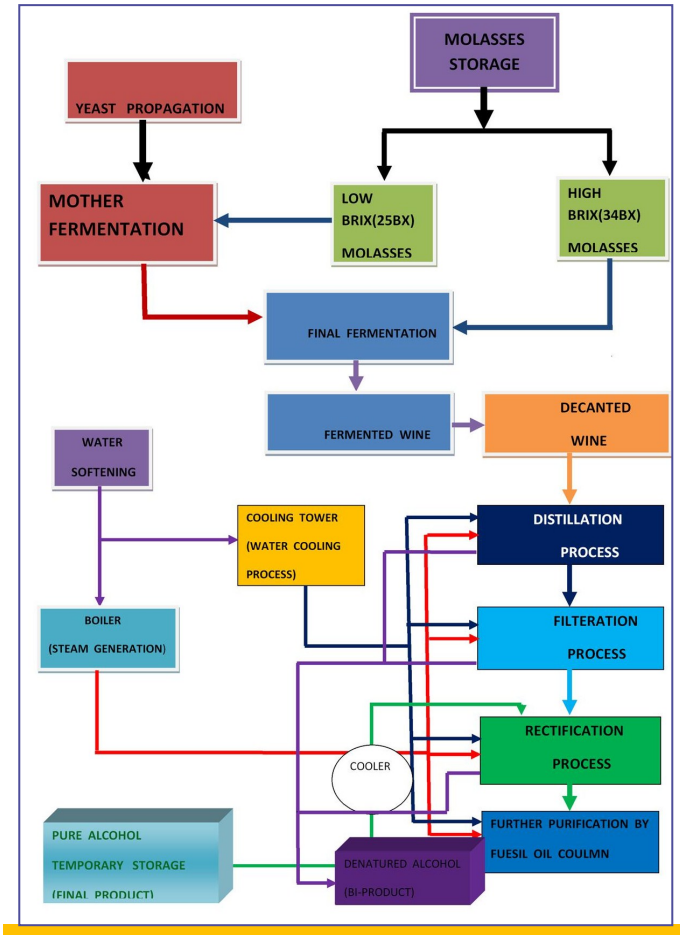
Major outputs	lt/yr
Pure Alcohol	1.5 million
Denatured alcohol	91,769.16
Effluent: M3 of waste water / M3 of pure alcohol produced: 0.85 and stillage (vinasse) from distillery: 0.083 M3/ M3 of pure alcohol produced	

Average KPI for LT of water/ Lt of pure alcohol produced/day in 2010: 14.2Lt/lt of pure alcohol.

NATIONAL ALCOHOL AND LIQUOR FACTORY (NALF)

Specific process information

NALF is the largest alcohol-producers in Ethiopia. Below is the process diagram.



Water awareness and reduction measures

In order to reduce their water consumption, NALF has taken the following measures:

- Collect and reuse the spent syrup preparation to reduce water- and molasses consumption.
- Separate tank shall be prepared to collect the discharge of clean water and reuse it for cleaning purpose and molasses syrup preparation.
- Every two days, about 1/3 of the make up water in the cooling tower is used to fill up the hot water. The discharge water can be collected and used for cleaning purposes or for diluting waste water from the production.
- In the boiler section reuse of discharged water is promoted.
- In order to find quantitative figures, water flow meters will have to be installed in the various sections of the production plants.
- Water recycling protocol/procedures: not yet developed
- Water use awareness campaign programme: awareness creation programmes have been conducted for top and middle management.
- Training programme on water saving initiatives: have been conducted for top and middle management.

Water use and effluent treatment

Source of process water: NALF uses ground water for all the activities related to fermentation. Since the water is extracted from the ground, it is not being paid for.

Effluent treatment methods: Currently waste water from yeast propagation and fermentation vessel washing and sludge from fermented mash clarification are not treated but discarded in a stream. Since Ethiopia hasn't put a Polluter Pays Principle in place, NALF is not paying for discarding its effluent.

NALF is currently building a new production plant just outside Addis Ababa. In this plant various measures to minimize the water consumption are taken. Some examples of these are:

- Modern measurements of all input materials including water.
- Recycling of grey water.
- Raw materials recovery from spent washes.
- Emission control by using modern steam boilers.

NYANZA BOTTLING CO. LIMITED

General Information

Nyanza Bottling Co. Ltd was established in 1988 and is a subsidiary company of The Sumaria Group of Companies, based at the shores of Lake Victoria in Mwanza city.

The Company produces and distributes carbonated soft drinks (CSDs) and non carbonated beverages packaged in refillable glass bottles (RGB) and plastic bottles (PET) respectively.

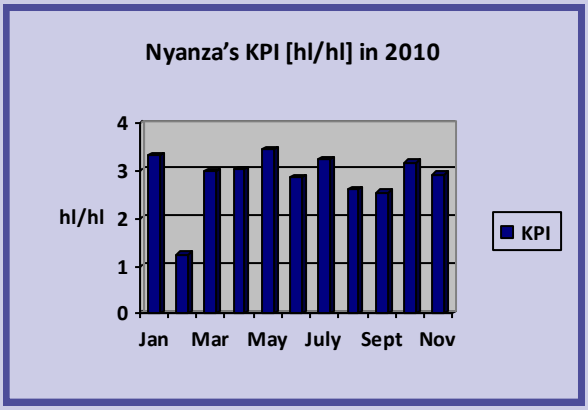
The company has over 13000 outlets and serves over 12 million consumers in six regions (Mwanza, Mara, Kagera, Shinyanga, Tabora and Kigoma).

At the moment Nyanza employs approximately 520 people and has a production capacity of 1.1 mln hl of beverage. A growth to 1,16 mln hl of beverage is anticipated for in 2011.

KORE
Coca-Cola OPERATING REQUIREMENTS

Nyanza has the following management systems in place: HACCP Certificate in 2005 and ISO 22000 Food and Safety Management Certificate in 2007.

Nyanza's KPI [hl/hl] monthly average in 2010 was 2.85



Inputs/outputs

Some of the major outputs are:

1.1 mln hl of beverage

Water use and effluent treatment

The main sources of water are:

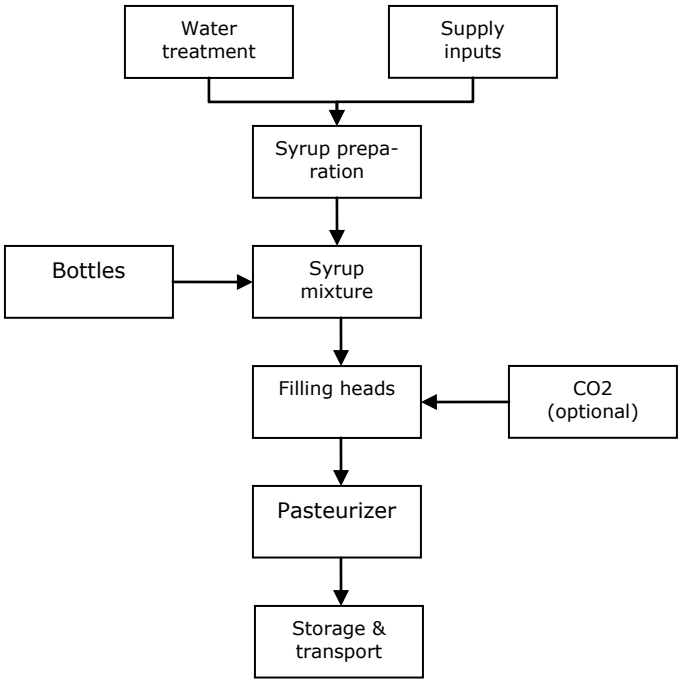
- The governmental raw water used for producing Beverage after passing several steps of treatment.
- The Underground water which is used for producing natural water

NYANZA BOTTLING CO. LIMITED

Specific process information

Nyanza is one of the larger soft-drink producers in Tanzania.

Underneath is a global process diagram:



Impact of ABIWSI

In the beginning of January 2010 the KPI was 3.33 hl/hl. After implementation of ABIWSI the KPI reduced to 2.93 hl/hl by the end of November 2010.

Water awareness and reduction measures

In order to reduce their water consumption, Nyanza has taken the following measures:

- Preventive maintenance of the main installation
- Recirculation of cooling water
- Reuse of treated waste water
- Installation of overhead tanks for employees toilets

TANZANIA BREWERIES LIMITED

General Information

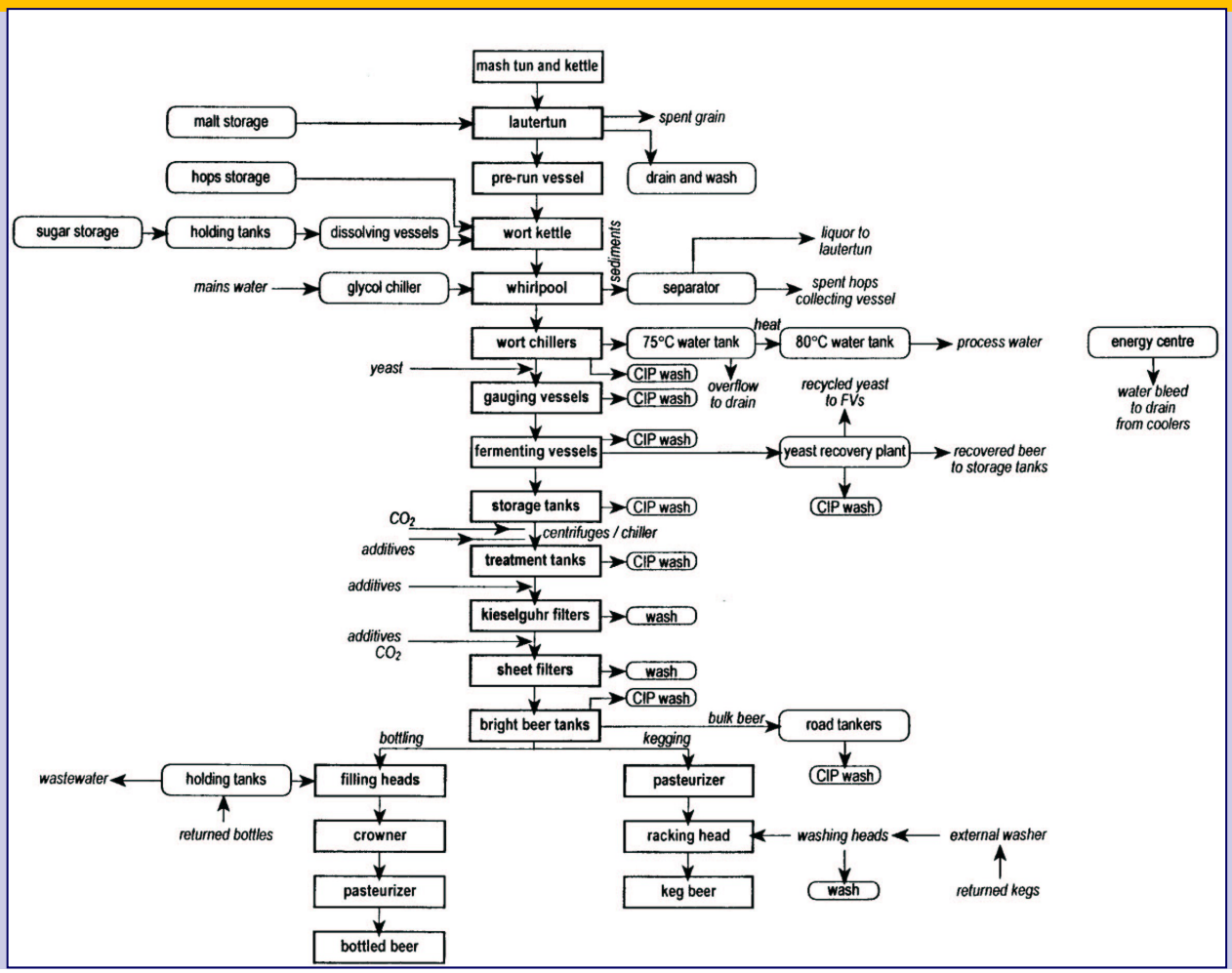
Tanzania Breweries Limited (TBL) was established in 2002. It is the largest producer of beer in Tanzania and has manufacturing plants at three locations, Dar es Salaam, Mwanza, Arusha and Mbeya.

Tanzania Breweries Limited (TBL) manufactures sells and distributes clear beer, alcoholic fruit beverages (AFB's) and non-alcoholic beverages. TBL has a controlling interest in Tanzania Distilleries Limited.

TBL is part of SABMiller, which is the second largest world's brewer.

The yearly turn-over is approximately 293,000 M Tsh (in 2010).

Specific process information



SERENGETI BREWERIES LIMITED

General Information

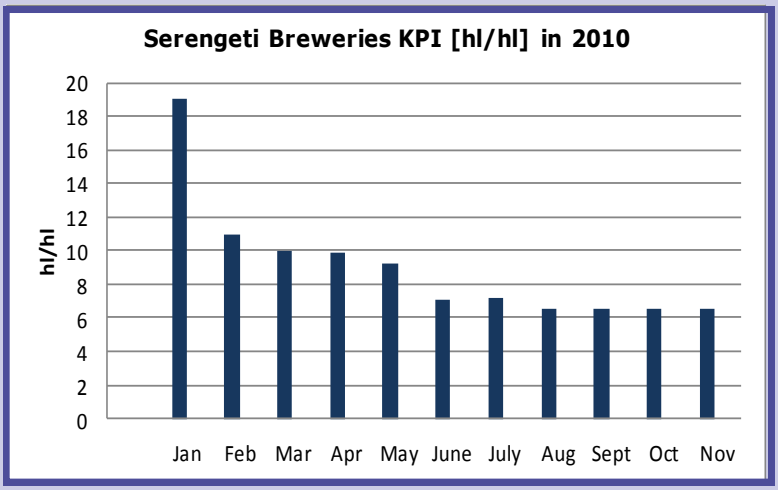
Serengeti Breweries Limited was established in 2002. It is the second largest producer of beer in Tanzania and has manufacturing plants at three locations, Dar es Salaam, Mwanza and a new one coming up in Moshi.

SBL produces both alcoholic and non-alcoholic products. Major brands are Serengeti Premium lager, Tusker, The kick, Uhuru peak lager and Vita malt Plus.

The company has a strong distribution network, which covers entire Tanzania and also exports the beer to neighbouring countries.

At the moment Serengeti Breweries employs approximately 300 people.

Serengeti Breweries KPI [hl/hl] monthly average was 9.04 in 2010

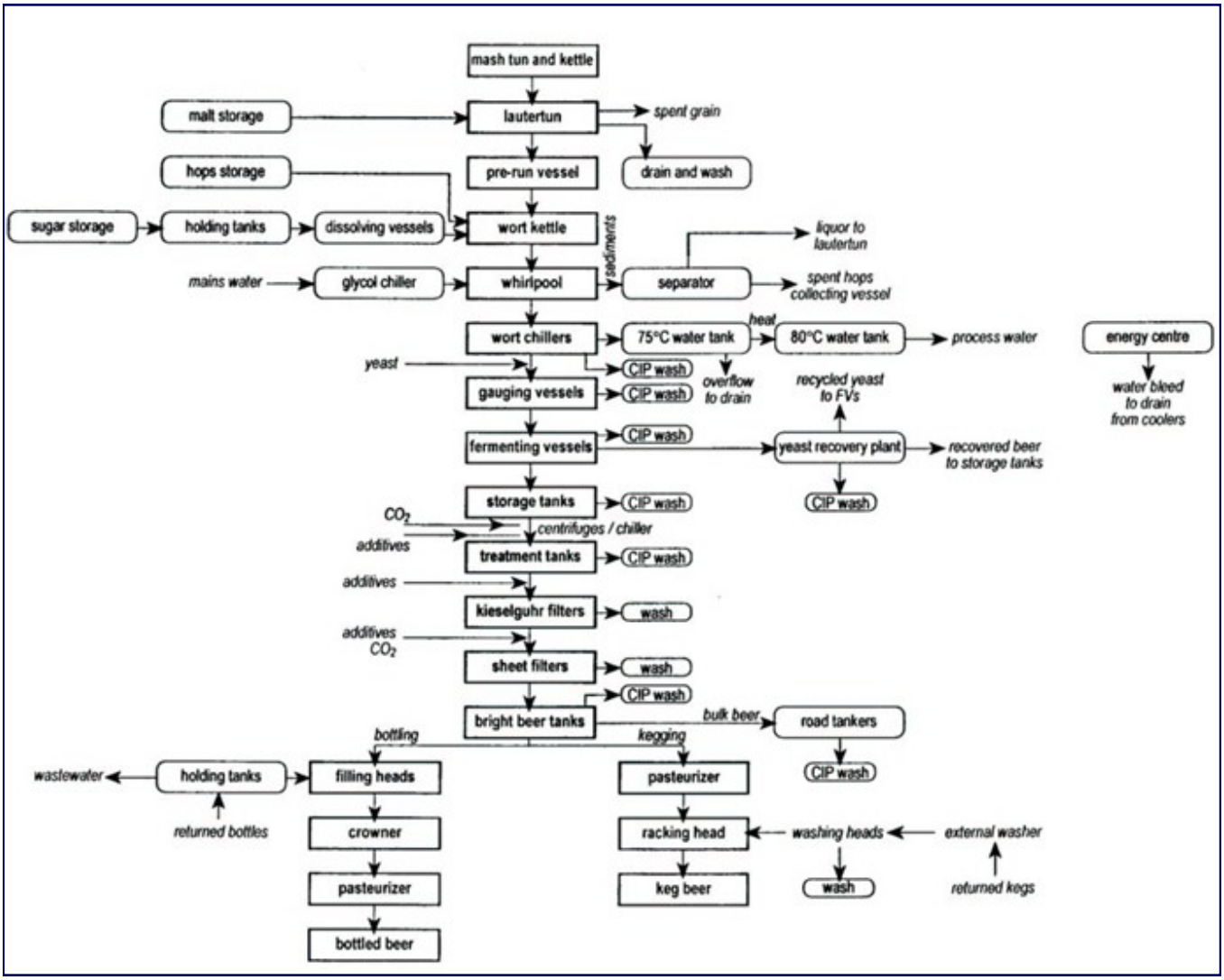


Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov
KPI	19	11	10	9.9	9.2	7.1	7.2	6.5	6.5	6.5	6.5

SERENGETI BREWERIES LIMITED

Specific process information

Serengeti Breweries is the second largest Beer-producers in Tanzania. Underneath is a global process diagram.



Benefits

After implementation of ABIWSI the average KPI of has dropped from 19 hl/hl in the beginning of 2010 to 6.5 hl/hl in November 2010.

Water awareness and reduction measures

In order to reduce their water consumption, Serengeti Breweries has taken the following measures:

- Formation of water saving team.
- Identification of the possible hotspots.
- Setting KPI.
- Preparation of a M&E system.
- Improved (corrective & preventive) maintenance

SOCIÉTÉ NATIONAL D'INDUSTRIES NUTRITIVÉ (SONUT)

General Information

SONUT Ltd was established in 1963 and is owned by SONID Investment Group.

The Company is capable of producing all kinds of carbonated soft drinks in various types of containers and packages.

SONUT boasted the production of a distinguished wide range of beverages, which are enjoyed and admired by many consumers.

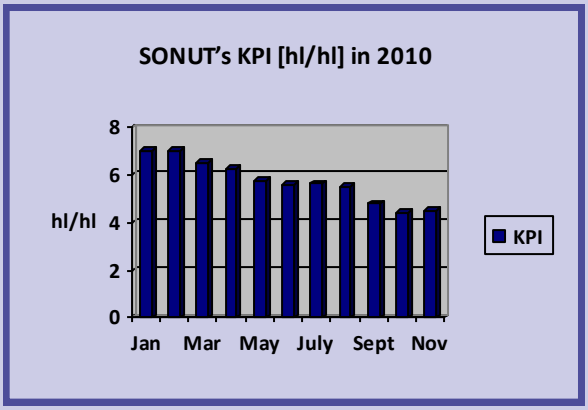
At the moment SONUT has a production capacity of 720.000 hl of beverage.

A growth to 865.500 hl of beverage is anticipated in 2011.

SONUT has the following management systems in place: ISO9001:2000, ISO 14001:2004 and OHSAS18001.

Type of management systems under development: HACCP Certificate

SONUT's KPI [hl/hl] monthly average in 2010 was 5.72



Inputs/outputs

Some of the major outputs are:

720.000 hl of beverage

Water use and effluent treatment

The main sources of water are:

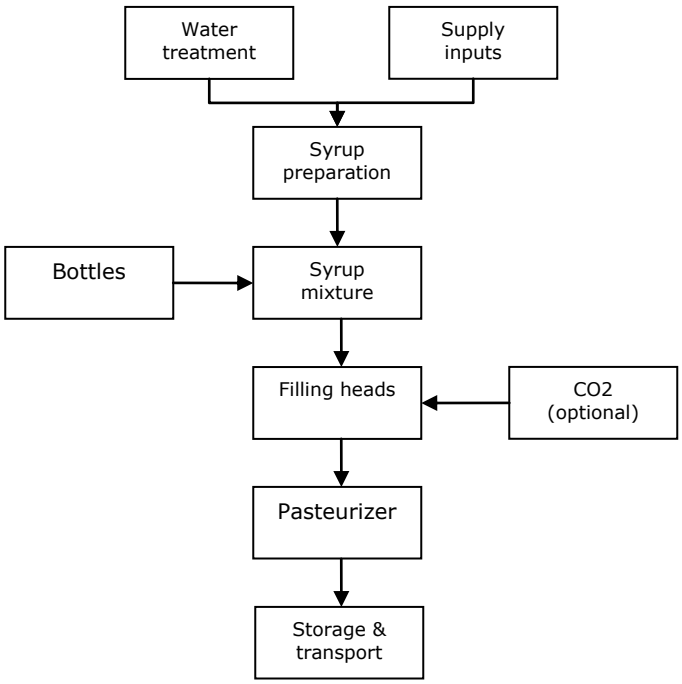
- The governmental raw water used for producing Beverage after passing several steps of treatment.
- The Underground water which is used for producing natural water

SOCIÉTÉ NATIONAL D'INDUSTRIES NUTRITIVÉ (SONUT)

Specific process information

SONUT is one of the larger soft-drink producers in Egypt.

Underneath is a global process diagram.



Impact of ABIWSI

After implementation of ABIWSI the average KPI of 7.0 hl/hl reduced to an average of 4.5 hl/hl by the end of November 2010.

Water awareness and reduction measures

In order to reduce their water consumption, SONUT has taken the following measures:

- A quick scan of the production plant
- Team formation to study the water consumption.
- Improved maintenance.
- Repair of the cooling system
- Awareness training programme on water saving initiatives for the production, Engineering and Quality team members and the site management team.