

A Project Report

On

“Water Level Indicator”



Submitted to the

Department of Physics

Radhabai Kale Mahila Mahavidyalaya,

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By

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Acknowledgement

*It gives a great pleasure to express my deep gratitude and respect to my guide **Dr. Mahadev Sarode Sir** for his valuable guidance, strong motivation, and constant encouragement during this project work. I also thankful to his valuable guidance.*

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M4s. Vijaya Bhausahab Berad

INDEX

	List of figures.....	Iv
	List of tables	V
	List of symbols, Abbreviations	Vi
Chapters		
1	Introduction	1
2	Functional Blocks.....	2
3	Circuit Diagrams	3
3.1	Pump set controlling Circuit	4
3.2	Numeric Water Level Display circuit.....	8
3.3	Purity Checking Circuit	11
3.4	PCB Layout	12
4	Advantages.....	14
5	Disadvantages	15
6	Conclusion and Future scope	16
	Bibliography	17
	Appendix: Data sheets	18

INTRODUCTION

A water level indicator may be defined as a system by which we can get the information of water level within the reservoir. Each and every time it might not be possible for the operator to keep an eye on the water filling process in the reservoir and immediately switch the motor OFF manually once the reservoir is completely filled. It may happen few times that the operator might be busy with some work and unknowingly forgets about switching the motor OFF manually and due to this kind of negligence, there might be unnecessary wastage of water. Keeping this in mind we have designed a system which can avoid these issues by completing the task automatically.

The automatic water level indicator and controller systems are quite useful to reduce the wastage of water from any reservoir, while filling water in such reservoir without worrying about switching the motor OFF once the reservoir is completely filled so as to avoid wastage of water. In this project we have used four probes namely A, B, C, D which are adjusted at four different levels in such a way that the three of them namely B, C, D are used to sense the three levels 1, 2 and 3 respectively of water in the tank. The fourth probe namely A is used as common and reference level to the three probes. In this project we have also used three LED indicators namely Red (Level 1), Yellow (Level 2) and Green (Level 3) which are connected to the three transistors. The four segments of insulated conducting probes (namely A, B, C, D) are immersed within the water tank by placing their naked ends at various abovementioned levels with the help of a rod. The length of the wire segments is adjusted according to the different water levels within the tank to indicate the required three water levels.

This is easily visualized by observing the three LED indicators. Once the Level 3 is sensed by probe-D in the water tank, the Green LED blinks indicating the tank is completely filled which in turn automatically switches the motor OFF by the relay [7] switching mechanism so as to avoid wastage of water.

WORKING PROCEDURE

The working procedure [6] of this project is: the circuit consists of four sensing probes namely A, B, C, D which are dipped in water at various levels to sense the level of water in the tank. The probe A is connected as common to other three, which should be at the bottom most part of the water tank, also it acts as a reference level.

The probes B, C, and D are set as Minimum/Slightly filled (Level 1), Half filled (Level 2) and Fully filled (Level 3) respectively. The circuit is assembled on a general zero PCB. On the PCB, three LED indicators – Red, Green, Yellow are connected to the three BC548 transistors [3] T1, T2 and T3. Both the LEDs and the transistors have been connected with the resistors of required values. Short length single stranded wires are used as sensing probes A, B, C and D. A Single Pole Double Throw (SPDT) relay switch is connected to the transistor T3. A 1N4007 diode [1] is connected to the relay switch.

A motor is connected to the normally closed terminal of the relay switch allowing it to work till the common pole is shifted to normally open terminal. A power supply of 5V is supplied to the circuit and that of 12V is supplied to the relay switch. When the power is supplied, as soon as the water in the tank touches the probe A and B both, a small current flow from A to B through water and to the base of transistor T1 via a 220 Ω resistor.

As a result, the transistor conducts causing the Red LED to glow indicating that the water is filled to a minimum required level. Similarly, when water touches sensing probe C, a small current flow from A to C through water and to the base of transistor T2 via a 220 Ω resistor. As a result, the transistor T2 conducts causing Yellow LED to glow and indicates that the tank is half-filled and still the pump works and it gives the information about the level of water in the tank. Finally, when the water in the tank touches sensing probe D, a small current flow from A to D through water and to the base of transistor T3 via a 220 Ω resistor.

As a result, the transistor T3 conducts causing the Green LED to glow and indicates the tank is completely filled and immediately the pole of the relay switch shifts from normally closed to normally open which disconnects the motor from the circuit and stops functioning. This prevents the unnecessary wastage of water once the tank is completely filled.

CIRCUIT DESCRIPTION

The circuit for this project can be referred from the Fig. 1 which gives an overview of how the connections of the necessary components are made so as to achieve the automated system to indicate and control water level & avoid its wastage.

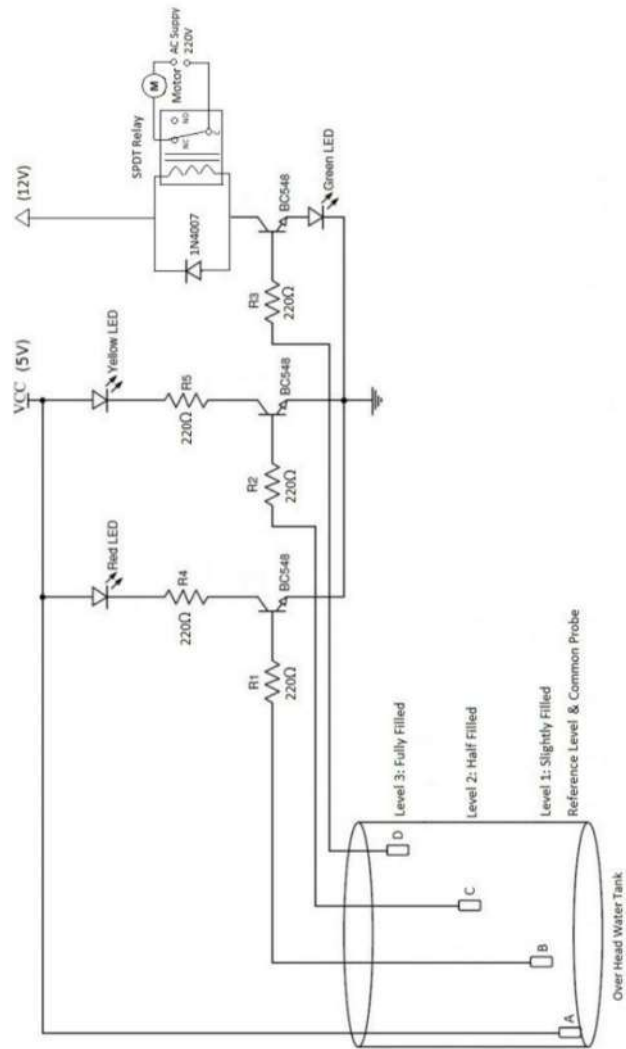


Figure 1: Circuit Diagram

HARDWARE SETUP

The hardware setup including all the required components, equipment's and circuits for this project can be referred in the Fig. 2

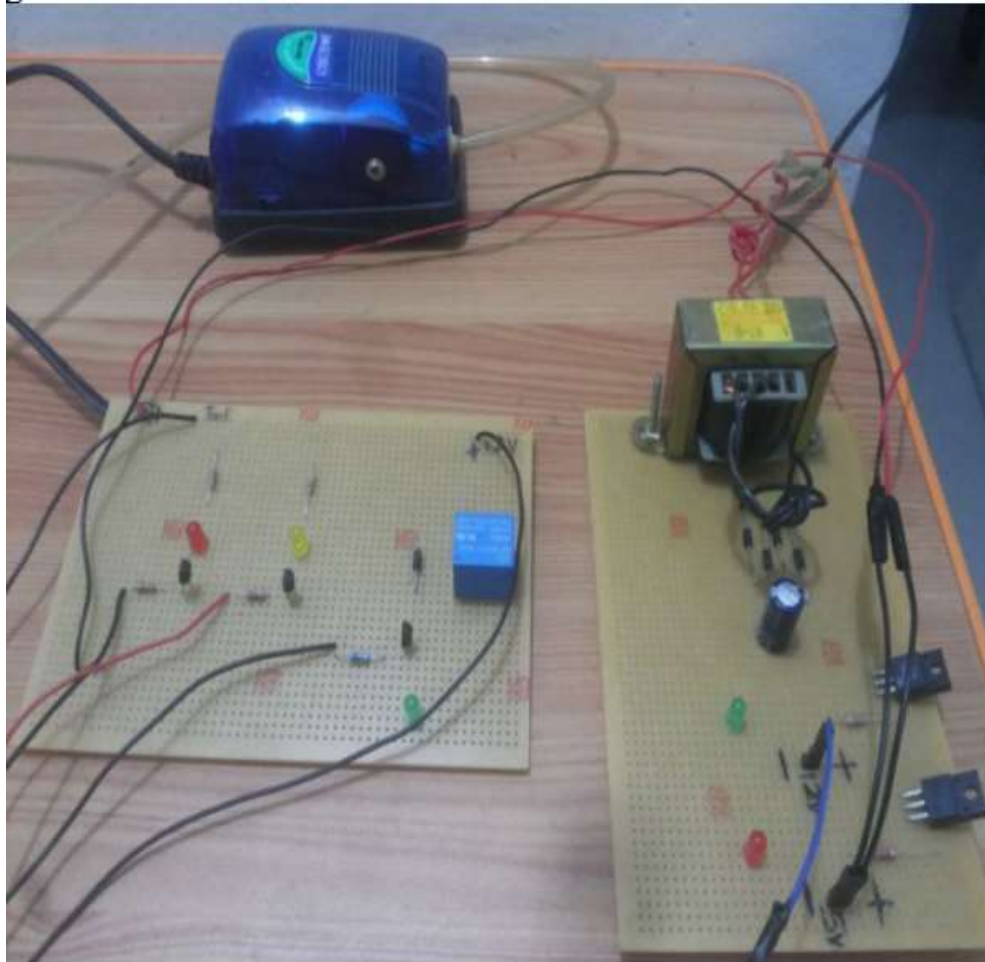


Figure 2: Hardware Kit Setup (PCBs with necessary components, Motor & Power Supply)

The hardware components used for the system:

- A. **Single Pole Double Throw Relay Switch:** The SPDT Relay (10A) [JQC-3FC (T73) DC5V] is a high-quality Single Pole Double Throw Relay (SPDT). The Relay consists of a coil, 1 common terminal, 1 normally closed terminal, and one normally open terminal. When the coil of the relay is at rest (not energized), the common terminal and the normally closed terminal have continuity. When the coil is energized, the common terminal and the normally open terminal have continuity. This relay's coil is rated up to 5V and the contact is rated up to 10A (@120VAC, 24VDC). In this project we have connected the motor to the normally closed terminal due to which it can keep on working until the tank gets completely filled and common terminal shifts to the normally open terminal which in turn disconnects the motor from the circuit.

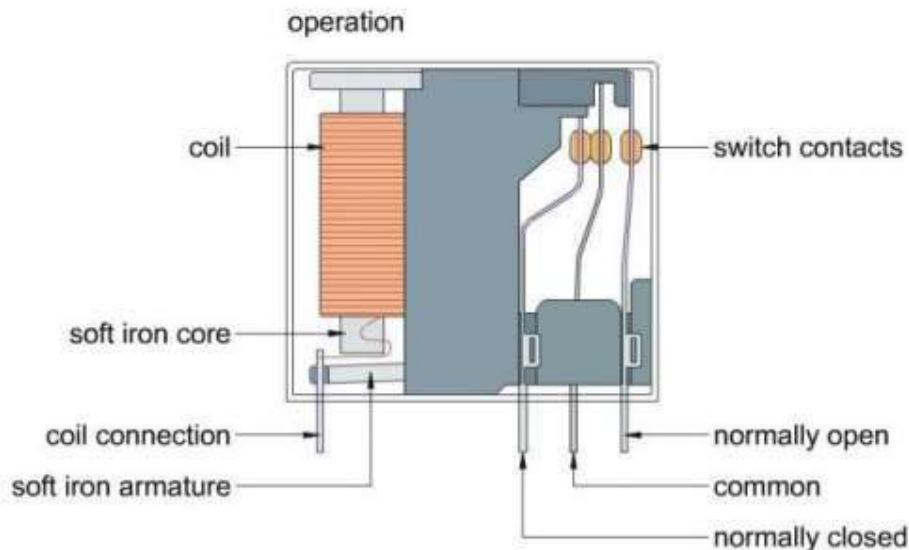


Figure 3: SPDT Internal Structure

- B. **BC548 Transistors:** BC548 is general purpose silicon, NPN, bipolar junction transistor. It is used for amplification and switching purpose. The current gain may vary between 110 and 800. In this project these transistors are acting as switches. It will act as closed switch when voltage at base terminal is greater than or equal to 0.7V, else it will act as open switch. It will display the common emitter configuration and is made up of silicon.

RESULTS

We can see the results of three LEDs indicating the three Levels 1, 2 and 3 achieved by water in the tank, displayed by Red, Yellow and Green LEDs respectively. The output of these results can be seen in the figures- 5,6, 7. The result shown in figure 7 indicates that the tank is completely filled by achieving the Level 3 in water tank which in turn switches the motor OFF immediately due to the relay mechanism.

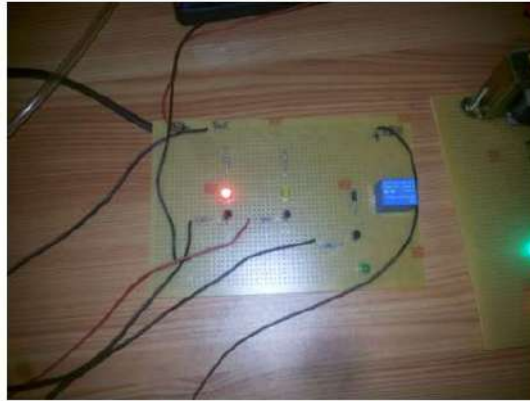


Figure 5: Red LED- Level 1 reached Indicating the tank is Slightly filled



Figure 6: Yellow LED- Level 2 reached Indicating the tank is Half filled



Figure 7: Green LED- Level 3 reached Indicating the tank is Completely filled

CONCLUSION

This paper was intended to design a simple and low-cost automatic water level indicator and controller. This is not only for water tank but also can be used for various liquids & oil level in industries and chemical labs too. To design this system, we used transistor as a platform connected to relay along with local materials for low cost. We tried to design a system in such a way that its components will be available easily and when connected together, will be able to prevent the wastage of water. The whole system operates automatically.

So, it does not need any expert person to operate it. It is not at all very expensive. This design has much more scope for future research and development. Though it is a project, we hope some modification in this project will lead to a reasonable diversity of usage.

APPLICATIONS

There are various applications of this project. Automatic Water Level Indicator & Controller can be used in different sectors such as Hotels, Factories, Homes Apartments, Commercial Complexes, Industries, Agricultural Purposes etc. It can be used to indicate fuel or oil levels in tanks or vehicles.

FUTURE SCOPE

Main intension of this project is to establish a flexible, economical and easy configurable system which can solve water losing problems. In the near future as home automation web-based water level monitoring and controlling system can be designed, through which the system can be controlled from any place via internet through mobile phone.

A GSM module can be integrated so as to receive the current status via SMS in registered cell-phones. It can be modified and put to great use like taking preventive steps when some natural calamities like floods, drainage overflows etc. are detected and for avoiding highly in-toxic liquid overflows in chemical plants etc.

This could save precious lives of number of living beings. Also, the assets purchased from hard earned money could be refrained from getting damaged with the prior information from such automated indicators and controllers.

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Ms. Shaikh Aiysha Samsher

Index

Chapter – 1: Introduction

Chapter – 2: Result and Discussion

Reference

Abstract

Alternate source of energy is always a green approach of energy consumption, in the time of crises of energy and global warming. Use of solar energy for cooking is better solution, but still not established as user friendliness and economic aspect. Food is the basic need of human being. Food can be cooked with conventional fuels like wood, cow-dung, kerosene, Liquid Petroleum Gas (LPG) and electricity. Solar cooker is clean and eco-friendly energy device for cooking. There are large number of solar cookers designed and developed by the scientists and researchers all over the world but still the utilization of solar cooker is not sufficient. There are many reasons for the insufficient uses of solar cooker like, its bulky size, heavy weight, lack of open place, slow cooking, fixed timing for cooking, less awareness etc. In this paper different solar cookers like solar panel cooker, solar parabolic cooker, solar box type cooker and hybrid solar cooker etc. are discussed in detail. Still lot of modifications are required to make the solar cooker user friendly, lighter in weight, smaller in size and still economic.

Development of a photovoltaic and thermal hybrid solar cooker has started a new horizon in the field of solar cookers as the cooking is faster than conventional box type solar cooker and can be used at users convenient time. The cooker was converted into solar dryer by small modification and was used for drying vegetables. Still lots of scopes are there for research in solar cooker especially for small size domestic solar cookers.

Key words: booster mirrors, Photovoltaic effect, solar cooker, solar dryer, sun basket

- **Introduction**

A solar cooker is a device which utilizes solar energy to cook food. Solar cookers also enable some significant processes such as pasteurization and sterilization. It is a clear fact that there are countless styles of solar cookers in the world and they are continually improved by researchers and manufacturers. Therefore, classification of solar cookers is a hard work. However, it may be asserted that most of the solar cookers today fall popular designs in this category [3]. Only cardboard and foil shaped was utilized to manufacture the CookKit. It was an affordable, convenient and effective solar cooker which enabled is tat simple concentrating type solar cooker is known as sun basket. The sun basket is basically a parabolic mirror, made from paper mache, reinforced by a layer of jute fabric and held in place by a bamboo frame. The reflector lining is an aluminium foil which is glued on the inner side of the basket.

This is also known as passive cooker. For fabricating the sun basket a mound of cement concrete of parabolic shape is made on the ground. This is done with the help of a previously fabricated plywood frame of parabolic shape, which is revolved on the masonry work while still soft. A bamboo basket is woven in such a way that it fits exactly over the shape of parboiled mound. At the same time, paper mache is prepared from 5kg of shredded waste paper, 2kg of wheat flour, 1kg of fenugreek flour and sufficient quantity of water to make a thick pulp. The ingredients are mixed well and heated to nearly boiling temperature. The

mould is then covered with one layer of water-soaked newspapers so that the paper mache would not stick to the mould. The paper mache is then pasted in a layer of about 1.2 cm thick and well-pressed upon the paper covered mould. On top of this, the bamboo basket is then placed and pressed well onto the wet surface. The paper mache is then taken out. silver foil the inside of the paper mache is then pasted with for reflecting solar rays. Nine sheets of (40*60 cm.) silver paper are necessary for a basket. For cooking purposes, the sun basket is focused towards the sun and the cooking pot is suspended from a tripod stand. It is claimed the sun basket under clear sky conditions can cook rice in 10 minutes and dal in 20 minutes. One liter of water can be brought to the boiling point in 5 minutes. The sun basket is estimated to be equivalent to 700 Watts electric cooker. [6]

Box Type Solar Cooker

Box Type Solar Cooker

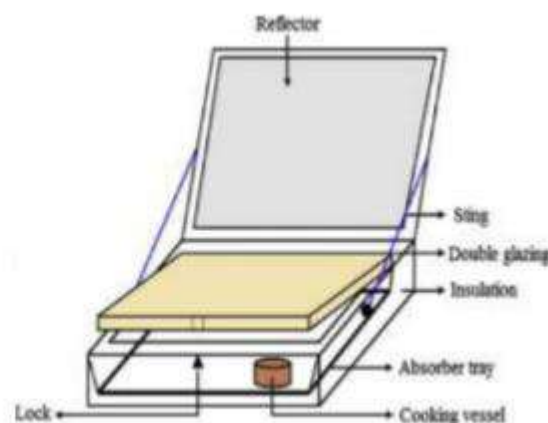
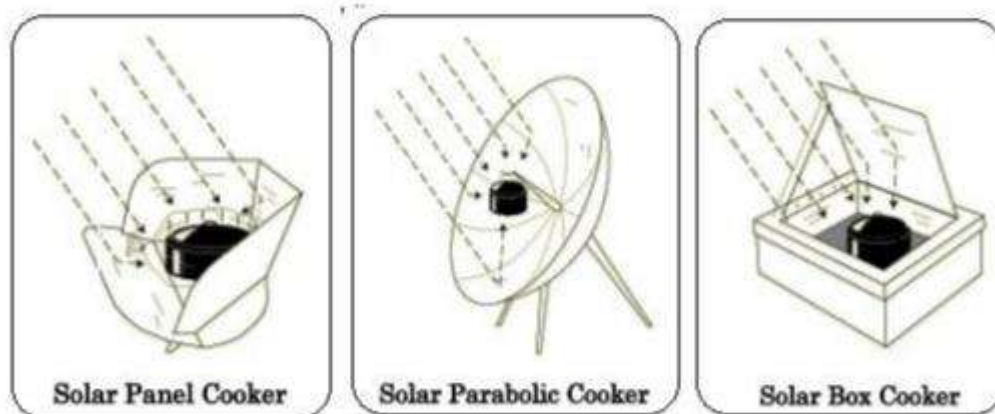


Fig. 2 Box Type Solar Cooker [7]

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History of solar cooking technology started with the invention of box-type solar cookers. The first solar box cooker was invented by a French–Swiss naturalist named Horace de Saussure in 1767. Especially in the twentieth century, this solar cooker type demonstrated a considerable development in terms of design and performance parameters. A solar box cooker basically consists of an insulated box with a transparent glass cover and reflective surfaces to direct sunlight into the box [7]. The inner part of the box is painted black in order to maximize the sunlight absorption. Maximum 4 cooking vessels are placed inside the box [8, 9]. A detailed description of solar box cookers is illustrated in component of the box cooker has a significant influence on cooking power. Therefore optimization of these parameters is vital for obtaining maximum efficiency.

Different Types of Solar Cookers:



2.0 Advance Solar Cookers:

2.1 Cooker with Booster Mirrors:

After the 1980s, researchers especially focused on optimization of geometry parameters of solar box cookers since they have a dominant effect on performance. In this context, some researchers analysed increase the efficiency of solar collectors since it provides extra solar radiation. The results indicated that the effectiveness of concentrators highly depends on the angle of mirrors. Garg and Hrishikesan [11] presented a comprehensive analysis of a system consisting of a flat plate collector integrated with two reflectors. They proposed a model which was numerically simulated for conditions prevailing in three different Indian stations for three different months. They found that the enhancement is maximum for the month of December in all the three stations for both horizontal and tilted surfaces. Narasimha et al. [12] comprehensively analyzed the solar cookers augmented with booster mirrors. They provided a single adjustable booster mirror to a solar box cooker and calculated the total energy falling on the cooking aperture for the latitude of 18 N (Warangal City, India) and for different declinations of the sun. Energy contribution by the booster mirror increase significantly with an increase in latitude of the location.

2.2 Uses of Phase changing materials (PCM):

Buddhi et al. [13] designed and analyzed a solar cooker augmented with three reflectors and a phase change material storage unit. The experimental results showed that late evening cooking is possible in the solar cooker proposed. Algifri and Al-Towaie [14] carried out a research in order to study the effect of the cooker orientation on its performance.

2.3 Uses of TIM (Transparent insulation material):

Insulation in a solar box cooker should not be limited to the walls of the frame box and absorber tray since a remarkable amount of heat loss occurs through the glazing. In this context, Nahar et al. [15] carried out some studies on utilization of transparent insulation material (TIM) in solar box cookers. Under an indoor solar simulator, they tested a hot box solar cooker with glazing surface consisting 40 and 100 mm thick TIM. The stagnation temperature with the 40 mm TIM was found to be 158 °C, compared with 117 °C without the TIM. A double reflector hot box solar cooker with TIM was designed, constructed, tested and its performance was compared with a single reflector hot box solar cooker without TIM.[15]

2.4 Different designs of solar cooking systems

Sonune and Philip [16] developed a Fresnel type domestic SPRERI concentrating cooker. The cooker was found capable of cooking food for a family which consisted of 4 or 5 people. The highest plate bottom temperature was calculated 255°C in approximately 40 min while ambient temperature was 30°C and direct solar radiation was 859 W/m². Prasanna and Umanand [17] developed a hybrid solar cooking system as shown in Fig. 3 where the solar energy was transported to the kitchen. The thermal energy source was used to supplement component of the box cooker has a significant influence on cooking power. Therefore optimization of these parameters is vital for obtaining maximum efficiency.

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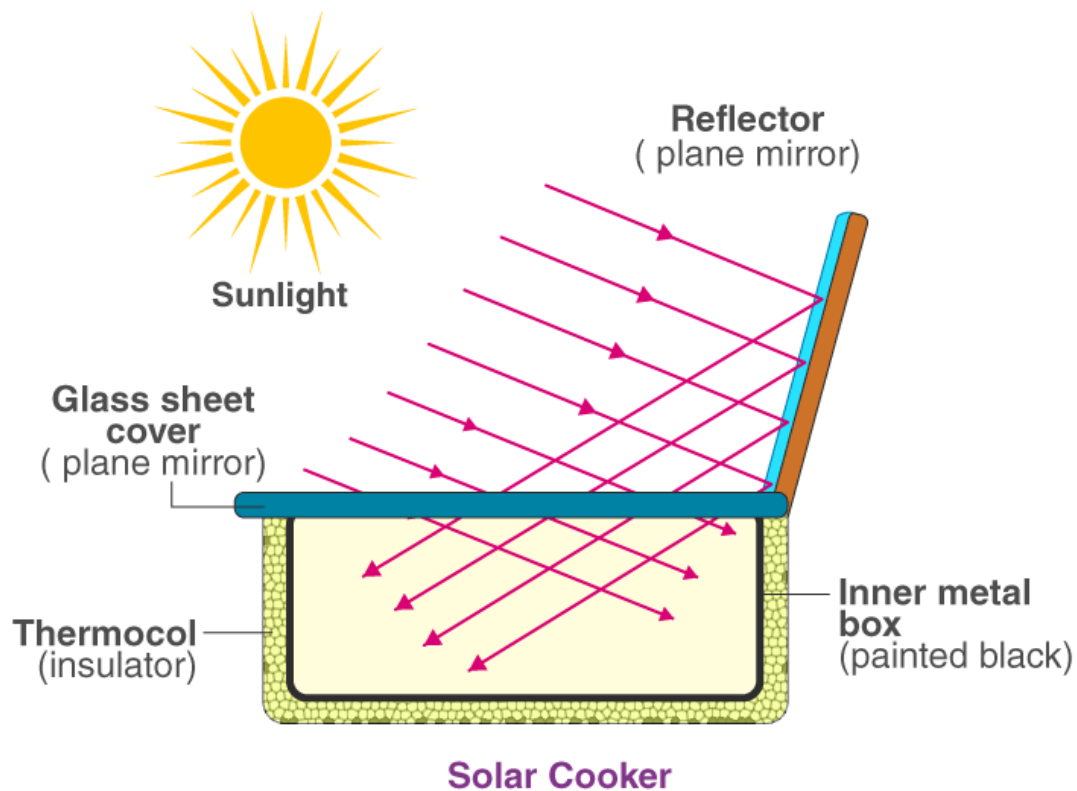
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Liquefied Petroleum Gas (LPG) which was in common use in kitchens.



It is a clear fact from the literature that solar cookers are very promising devices in the upcoming future. However, there are some handicaps concerning the solar cooking technology. Perhaps, the most challenging point of solar cookers is that they are not able to serve when the sun goes down. Some researchers performed intensive efforts on solar box cookers in order to allow late evening cooking. PCMs were considered as a solution in most cases. Bushnell [18] designed, constructed and evaluated a solar energy storing heat exchanger as a step toward a solar

cooking concept. The methods for describing the system performance were explained and applied to a test system containing a controllable replacement for the solar input power. This first stage of this research work followed by a heat exchanger, which was connected to a concentrating array of CPC cylindrical troughs. Author also described the size of the solar collector area and mass of PCM mass needed in order to provide adequate energy for several family-size. Different researchers have studied ionic liquid for heat storage in solar energy devices [19-21]. The small scale Photovoltaic and Thermal Hybridized (Casserole type) solar cooker as designed and developed was developed [22] tested for the performance with (a) Thermal Energy Storage materials (TES), sand (b) Ionic liquids (IL) BF₄⁻ and PF₆⁻ [23-25]. The cooker was modified and made users friendly all time working solar cooker and The maximum utilization of the solar cooker was studied by cooking different dishes in it [26,28]. The hybrid cooker was made more efficient by tracking the solar panel with dual axis solar tracker [29].The hybrid cooker was converted into solar dryer and was used for agricultural applications. [30, 31].

5.0 Conclusion

Scientists all over the world have made large number of efforts in developing different types of solar cookers for many decades. Although it can be one of the best alternative for cooking, it is hardly accepted by the society. There are many reasons for that like lack of awareness, large size, bulky models, slow cooking, highly dependent on weather conditions, fixed cooking time etc,

The hybrid solar cooker which can work for all time and can cook faster than the conventional solar cooker has being designed and developed which if commercialized can become competent to the conventional solar cooker and can be proved as a boon to the society.

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**Rayat Shikshan Sansta's
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**A
PROJECT REPORT
ON
PROCESS COSTING
SHRI AMBALIKA SUGAR PVT. LTD. AMBIKANAGAR,
TAL. KARJAT, DIST- AHMEDNAGAR.**

**SUBMITTED TO,

IN THE PRACTICAL FULFILLMENT OF,

MASTER DEGREE OF COMMERCE

(SAVITRIBAI PHULE PUNE UNIVERSITY,PUNE)**

**SUBMITTED BY,
MISS. AARTI SUNIL DHAVALE**

**UNDER GUIDANCE OF
ASST. PROF. MR. JADHAV MAHESH M.**

Year 2020-2021



Rayat Shikshan Sanstha's
RADHABAI KALE MAHILA MAHAVIDYALAYA,
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CERTIFICATE

This is to certify that, **MISS. AARTI SUNIL DHAVALE** of Radhabai Kale Mahila Mahavidyalaya, Ahmednagar has completed project work title **PROCESS COSTING SHRI AMBALIKA SUGAR PVT. LTD. AMBIKANAGAR, TAL. KARJAT DIST. AHMEDNAGAR.** in practical fulfillment of requirement for completion of master degree of commerce.

This project report is record of authentic work carried by her/ she was worked under my guidance.

Date:-

Place:- Ahmednagar

Ass. Prof. Mr. Jadhav Mahesh M.

Project Guide

Head of Department

Internal

External

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This is to certify that work incorporated in the project of
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**SHRI AMBALIKA SUGAR PVT. LTD. AMBIKANAGAR, IN
AHMEDNAGAR**

Submitted by

MISS. AARTI SUNIL DHAVALE

**Was carried out by the candidate under my
supervision and guidance.**

**Such material as has been obtained from other sourced has been
duly acknowledged in thesis.**

Date:

Place: Ahmednagar

ASS. Prof. Jadhav M.M.

Project Guide

CERTIFICATE

This is to certify that **MISS. AARTI SUNIL DHAVALE** studying in master of commerce at Radhabai Kale Mahila Mahavidyalay, Ahmednagar. Has visited our office for collection of information and data on “**PROCESS COSTING AT SHRI AMBALIKA SUGAR PVT. LTD. AHMEDNAGAR.**” regarding his project work. We provided his necessary information regarding “**PROCRSS COSTING** ” and also issued his necessary documents and forms to be used for the project work.

This certificate is issued on his request for academic purpose only.

Date: / / 2021

Place : Ahmednagar

ACKNOWLEDGEMENT

Inspiration is the necessary for success. The project report on “**PROCESS COSTING AT SHRI AMBALIKA SUGAR PVT. LTD. AHMEDNAGAR**” which prerequisites part of my M.Com of Savitribai Phule University.

My sincere thanks to project guide **Prof. M. M. Jadhav (Radhabai Kale Mahila Mahavidyalay, Ahmednagar)** who particularly and personally guided and help me time to time for completing this project within the stipulated time.

In addition , I thank to the teachers helped me in the successful completion of this project report.

Date: / / 2021

Place : Ahmednagar

MISS. AARTI SUNIL DHA VALE

(M.COM - II)

DECLARATION

I do hereby that this project titled “**PROCESS COSTING AT SHRI AMBALIKA SUGAR PVT. LTD. AHMEDNAGAR**” submitted by me to the department of Radhabai Kale Mahila Mahavidyalay, Ahmednagar. Is the project of own my effort. To the best of my knowledge and belief that this report is based on reliable actual measurement. This dissertation has not been submitted to any other university for the award of the any degree.

Date : / / 2021

Place : Ahmednagar

**MISS. AARTI SUNIL DHAVALÉ
(M.COM – II)**

COMPANY PROFILE



Company Name	Shri Ambalika Sugar Pvt. Ltd Ambikanagar, Tal-Karjat, Dist- Ahmednagar.
Company Registration No.	U15429PN2011PTC139507
Capacity	7500 TCD with 38 MW Co-Generation & 60 KLPD Distillery.
Plant	Uttam Sucrotech International
Turbine	Triveni & Siemens make having 38 MV generation capacity
Sales Tax Registration No.	27025237258-27025237258-C
Excise Registration No.	AAPCS8027HEM001
GSTIN	27AAPCS8027H1ZW
Bankers	1. The Maharashtra State Co-op. Bank Ltd, Mumbai. 2. The Pune D. C. C. Bank Ltd, Pune

**SHRI AMBALIKA SUGAR PVT. LTD.
AMBIKANAGAR,
TAL. KARJAT, DIST- AHMEDNAGAR.**



Since 2011, Shri Ambalika Sugar Private Limited (SASPL) has played a key role in making life a little sweeter. SASPL is a technology company with a business mix that spans sugar, specialty sugars, co-generated power, alcohol (RS), extra neutral alcohol (ENA), Absolute Alcohol (Ethanol).

WHAT WE DO

Sugar Production is the prime task. Along with it we provide services like distillery, Co-generation, ITI etc. We are glad to introduce many new aspect of services from our side to make the most of benefit.

OUR QUALITY

Factory is reputed for its Quality. Factory awarded ISO 9000:2015 for Quality Management Systems and awarded ISO 22000:2005 for Food Safety Management Systems.

WHY US

We have fully integrated our sugar factory with the distillery, co-generation and bio-compost units. Most of the sugar we produce confines to EU grade.

Vision :

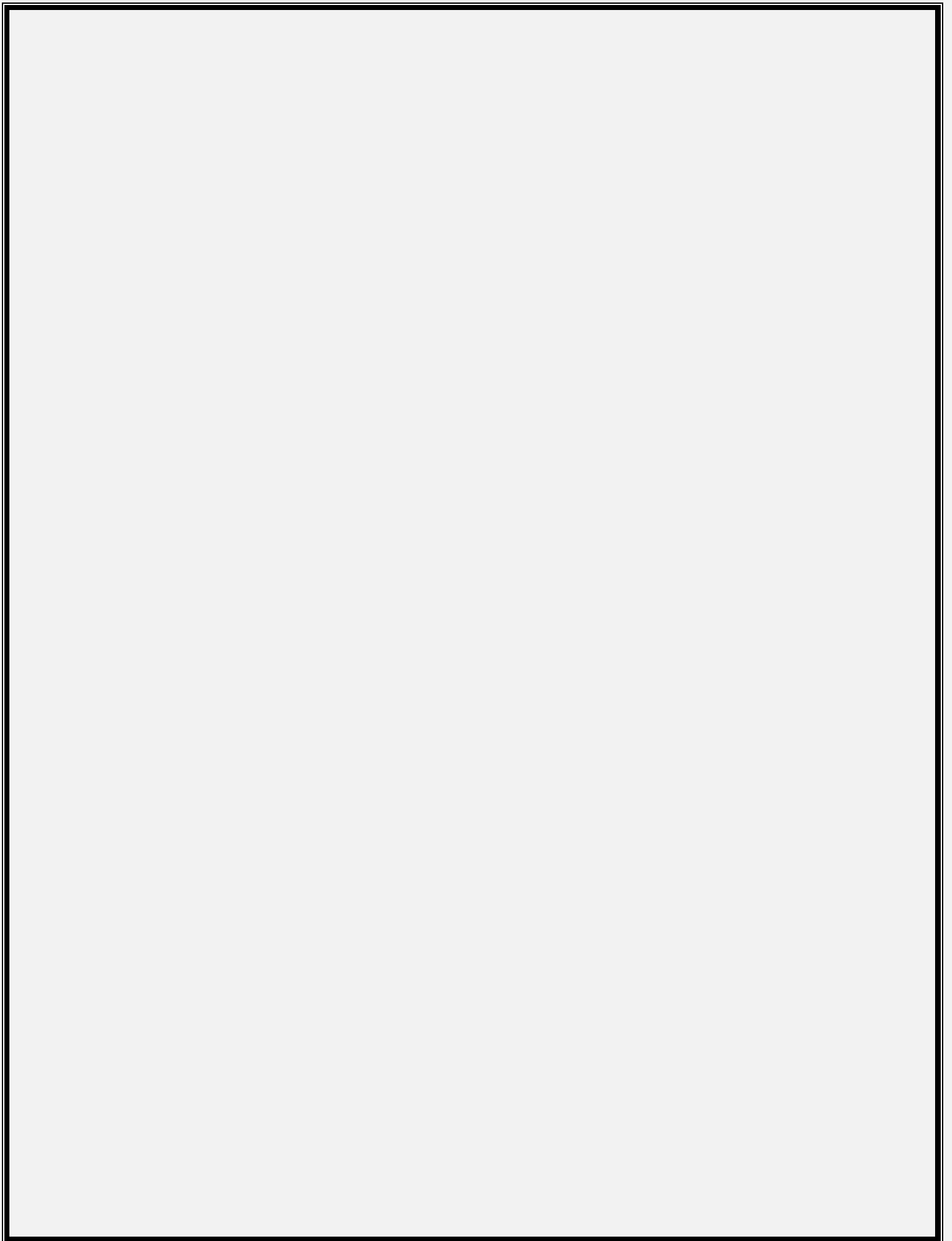
"To be an environment friendly, innovative, professionally managed, integrated sugar factory with low cost global technologies producing range of value added products."

Mission :

We will remain committed to sustainable business practices; deliver world-class quality to our customers; nurture a global work culture; and build a financially strong, growth oriented company that creates value.

Values :

- Farmers first.
- Cherish customers.
- Encourage ideas, innovation, excellence, enterprise and teamwork in employees.
- Leverage world-class technology.
- Aspire to be a learning organization.



Sugar



A Product Range That Spans the Entire Sugar Value Chain We have fully integrated our sugar factory with the distillery, co-generation and bio-compost units. Most of the sugar we produce confines to EU grade. The result is energy conservation, optimal utilization of by-products, cost savings and most importantly, a product portfolio that includes specialty sugars, ethanol, power and organic manure.

Quality Control.

From The Farm To The Manufacturing Floor At SASPL We are fully compliant to world-class quality standards. Our quality control efforts extend from the lab to the farmland to the manufacturing floor. We procure cane varieties noted for their quality and yield attributes. Improved cane varieties, cane seed sets are provided to farmers. Based on these findings, a continuous feedback is provided to farmers, with whom we are in close contact at every stage of the crop cycle.

World-Class Technology, World-Class Sugars We deploy cutting-edge technology, thereby eliminating the use of harmful chemicals. Great care is taken to maintain international standards of hygiene and handling; and use high quality, food-grade packaging materials.

Distillery



SASPL is one of the leading organization in Maharashtra having production capacity 60 KLPD Wash to Rectified Spirit / Extra Neutral Alcohol & 60 KLPD Absolute Alcohol (Ethanol). Factory has adopted modern technology like Vacuum Multipressure distillation, integrated type Evaporation & Molecular sieve based Absolute Alcohol (Ethanol) Plants supplied by Praj Industries Limited, Pune.

Our Distillery Plant is fully atomization with world-class quality standards. Great care is taken to maintain international standards of hygiene and handling as well as we strictly follows standard operating process with good manufacturing practices & good laboratory practices. Thereby we ensuring product integrity & have a benchmark of our Alcohol products in International market.

Power Generation



Bagasse is used as a major fuel source for power cogeneration. This cogeneration benefits the environment by reducing the greenhouse gases (GHGs) in the atmosphere.

We at SASPL generate 38 MW of power from modern cogeneration plant. We installed spent wash fire boiler i.e. 28.3 TPH, 44 kg/cm² & 3500 C with 2.6MW generation and achieved Zero Liquid Discharge.

Soil Testing Laboratory



Increased productivity soil crop is vitally associated with not only high yielding seeds, chemical fertilizers and irrigation water application but also with the Structure, Texture and Health of the Soil. From this point of view, Shri Ambalika Sugar Private Limited. along with Department of Agriculture, Maharashtra has established a soil testing laboratory at factory site to test soil, water, plant and fertilizer sample. Farmers are guided for how to take soil and water sample, time of sampling, place of sampling, providing sampling information for laboratory analysis and further consideration, for amelioration and reclamation of acidic and sodic soil respectively. On the basis of soil test report the fertilizer recommendations are given for different crops and according to targeted yield approach concept of State Agricultural Universities for sugarcane.

Factory has appointed highly qualified and experienced staff for the Soil Laboratory.

INTRODUCTION OF PROCESS COSTING

Process Costing is probably the most widely used costing system. Process Costing is a method of costing under which all costs are accumulated for each stage of production and the cost per unit of product is ascertained at each stage of production by dividing the total cost of each process by the normal output of that process.

Process costing is an alternative method of cost accounting. Like job costing, even process costing is a basic method by which costs are accumulated by processes. In the case of job costing, costs are charged to each individual customer.

Process costing can be applied in chemical works, oil refining, food manufacturing, paint works, canning, textiles, paper, dairy, sugar, bakeries, breweries, mining industries, public utility services **etc.**

What is Process Costing–Meaning

Process Costing is probably the most widely used costing system. Process Costing is a method of costing under which all costs are accumulated for each stage of production and the cost per unit of product is ascertained at each stage of production by dividing the total cost of each process by the normal output of that process.

Process Costing – Definitions

Kohler

“a method of cost accounting whereby costs are charged to processes or operations and averaged over units produced”.

Chartered Institute Of Management

Accountants

“the basic costing method applicable where goods or services result from a sequence of continuous or repetitive operations or processes. Costs are averaged over the units produced during the period.”

Features of Process Costing

- The production is continuous.
- The product is homogeneous.
- The process is standardized.
- The output of one process becomes the raw material of another process.
- The output of the last process is transferred to finished stock.
- Costs are collected process-wise.
- Both direct and indirect costs are accumulated in each process.
- If there is a stock of semi-finished goods, it is expressed in terms of equivalent units.
- The total cost of each process is divided by the normal output of that process to find out the cost per unit of that process.

Types of Process Costing :

Weighted Average Cost:

The weighted average cost is one of the simplest process costing method. Where all the costs involved in all the processes are calculated together to calculate the total process costing.

Standard Costs:

There is the slightest difference between the weighted average cost method and the standard cost method. In the standard cost method, only the standard cost of a production process is assigned to each department at the place of the actual cost. When the total cost is obtained by calculating the standard cost, then the difference between actual cost and standard cost is charged to the variance account.

First In First Out (FIFO) Costing:

First In First Out is the most complex process of process costing. This process costing method involves various layers of calculation. For example, the uncompleted product cost and the production of the product in the current process are calculated together.

Why use Process costing?

- Process costing helps calculate product cost per unit. The cost of finished goods is considered as the cost of goods while calculating the sales revenue made by the company.
- Process costing is useful in those companies which produce products in bulk but sell products singly. For example, toys are produced in bulk together but are sold individually.
- A small difference in the production cost of a product might make a huge difference in the total profitability. Therefore, it is important to keep a constant eye on the daily production cost.
- Process costing helps managers to keep a check on the manufacturing budget and in this way, they can make sure that they don't cross the budget limit and the manufacturing costs of different months can be compared to make more establish a budget in the coming months.
- There is certain material which gets parted in a process. By using process costing, you can give value to those materials used.

OBJECTIVE OF THE STUDY

The following of the objective of the study

- ❖ To study the cost of production.
- ❖ To identify the process of manufacturing.
- ❖ To identify the difficulties of installation of cost accounting system.
- ❖ To study of the principles of the process costing.
- ❖ To study of the elements of the process cost.
 1. Material
 2. Labour
 3. Direct expenses
 4. Overheads

RESEARCH METHODOLOGY

➤ **Primary data**

Primary data are generated when the researcher employing mail questionnaire, telephone survey and observation and experiment investigation particular problem at hand.

➤ **Secondary data**

The data are the information which are attend the indirectly. The data which is collected from document of the individual are known as secondary data This information collected from factory record as annual report etc.

SUGGESTIONS

The factory can use new technology in sugar production.

The factory can provide employment in their local people.

The company can used the method of the optimum utilization of resources to have the greater usefulness of each and every thing related to the process.

The factory can follow the regulaion given by the government of india to have to be compliance with the format and procedure given by the government to be followed in the india.

CONCLUSION

In this study is attempt to made analyze the cost analysis of the sample unit. Since the Shri Ambalika Sugars LTD. Is facing heavy competition in an around area of region, it is essential to focus on the object of cost, profitability etc.

Process costing may be used when identical items are mass produced and manufacturing may involve more than one process

QUESTIONNAIRE

- What type of product do you generally make?
- Do you have your own factory premises?
- How you deal with the material used in the process?
- where you make the entry of the expenses related to the process?
- Are you satisfied with the ongoing technologies or would you like to upgrade them?

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- <https://zaubacorp.com>



**Rayat Shikshan Sansta's
RADHABAI KALE MAHILA MAHAVIDYALAYA
AHMEDNAGAR - 414001**

**A
PROJECT REPORT
ON**

**PROCESS COSTING
SHRI AMBALIKA SUGAR PVT. LTD. AMBIKANAGAR,
TAL. KARJAT, DIST- AHMEDNAGAR.**

**SUBMITTED TO,
IN THE PRACTICAL FULFILLMENT OF,
MASTER DEGREE OF COMMERCE
(SAVITRIBAI PHULE PUNE UNIVERSITY,PUNE)**

**SUBMITTED BY,
MISS. AARTI SUNIL DHAVALE**

**UNDER GUIDANCE OF
ASST. PROF. MR. JADHAV MAHESH M.**

Year 2020-2021



Rayat Shikshan Sanstha's
RADHABAI KALE MAHILA MAHAVIDYALAYA,
AHMEDNAGAR

CERTIFICATE

This is to certify that, **MISS. AARTI SUNIL DHAVAL** of Radhabai Kale Mahila Mahavidyalaya, Ahmednagar has completed project work title **PROCESS COSTING SHRI AMBALIKA SUGAR PVT. LTD. AMBIKANAGAR, TAL. KARJAT DIST. AHMEDNAGAR.** in practical fulfillment of requirement for completion of master degree of commerce.

This project report is record of authentic work carried by her/ she was worked under my guidance.

Date:-

Place:- Ahmednagar

Ass. Prof. Mr. Jadhav Mahesh M.

Project Guide

Head of Department

Internal

External

GUIDE CERTIFICATE

This is to certify that work incorporated in the project of
PROCESS COSTING

AT

**SHRI AMBALIKA SUGAR PVT. LTD. AMBIKANAGAR, IN
AHMEDNAGAR**

Submitted by

MISS. AARTI SUNIL DHA VALE

**Was carried out by the candidate under my
supervision and guidance.**

**Such material as has been obtained from other sourced has been
duly acknowledged in thesis.**

Date:

Place: Ahmednagar

ASS. Prof. Jadhav M.M.
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INDEX

Sr. No.	Title	Page NO.
1.	Introduction	8-10
2.	Company Profile	11-25
3.	Objective Of Study	26-27
4.	Review Of Literature	28-38
5.	Research Methodology	39-40
6.	Analysis & Interpretation	41-50
7.	Findings, & Suggestions	51-52
8.	Conclusion	53-54
9.	Questionnaire	55-56
10.	Bibiliography	57-60

Introduction

Process Costing refers to a method of accumulating cost of production by process. It represents a method of cost procedure applicable to continuous or mass production industries producing standard products. Costs are compiled for each process or department by preparing a separate account for each process.

Process costing can be applied in chemical works, oil refining, food manufacturing, paint works, canning, textiles, paper, dairy, sugar, bakeries, breweries, mining industries, public utility services etc. When a product is manufactured through various processes, the output of each process is transferred to the subsequent process and that of the last process is transferred to the finished stock.

It represents a type of costing procedure for mass production industries producing standard products.

Typically, in such industries all goods produced are for stock, units produced are identical, goods move down the production line in a continuous stream, and all factory procedures are standardised, costs are compiled for each process or department by preparing a separate account for each process. Thus, it is a method of costing used to ascertain the cost of product at each stage of manufacturing.

Process costing is the only reasonable approach to determining product costs in many industries. It uses most of the same journal entries found in a job costing environment, so there is no need to restructure the chart of accounts to any significant degree. This makes it easy to switch over to a job costing system from a process costing one if the need arises, or to adopt a hybrid approach that uses portions of both systems.

What is Process Costing — Meaning and Concept

Process Costing is probably the most widely used costing system. Process Costing is a method of costing under

which all costs are accumulated for each stage of production and the cost per unit of product is ascertained at each stage of production by dividing the total cost of each process by the normal output of that process.

Process costing is used when there is mass production of similar products, where the costs associated with individual units of output cannot be differentiated from each other. In other words, the cost of each product produced is assumed to be the same as the cost of every other product. Under this concept, costs are accumulated over a fixed period of time, summarized, and then allocated to all of the units produced during that period of time on a consistent basis. When products are instead being manufactured on an individual basis, job costing is used to accumulate costs and assign the costs to products. When a production process contains some mass manufacturing and some customized elements, then a hybrid costing system is used.

Examples of the industries where this type of production occurs include oil refining, food production, and chemical processing. For example, how would you determine the precise cost required to create one gallon of aviation fuel, when thousands of gallons of the same fuel are gushing out of a refinery every hour? The cost

accounting methodology used for this scenario is process costing.

Process Costing – Definitions

Kohler has defined process costing as –

“a method of cost accounting whereby costs are charged to processes or operations and averaged over units produced”.

CIMA has defined process costing as –

“the basic costing method applicable where goods or services result from a sequence of continuous or repetitive operations or processes. Costs are averaged over the units produced during the period.”

COMPANY

PROFILE

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The director name of the factory is Dilip Sarjerao Kadam and Jangal Nivrutti Wagh.

Vision

"To be an environment friendly, innovative, professionally managed, integrated sugar factory with low cost global technologies producing range of value added products."

Mission

We will remain committed to sustainable business practices; deliver world-class quality to our customers; nurture a global work culture; and build a financially strong, growth oriented company that creates value.

Values

- Farmers first.
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- Encourage ideas, innovation, excellence, enterprise and teamwork in employees.
- Leverage world-class technology.
- Aspire to be a learning organization.

What we do

Sugar Production is the prime task. Along with it we provide services like distillery, Co-generation, ITI etc. We are glad to introduce many new aspect of services from our side to make the most of benefit.

Our Quality

Factory is reputed for its Quality. Factory awarded ISO 9000:2015 for Quality Management Systems and awarded ISO 22000:2005 for Food Safety Management Systems.

Why us

We have fully integrated our sugar factory with the distillery, co-generation and bio-compost units. Most of the sugar we produce confines to EU grade.

Sugar



A Product Range That Spans the Entire Sugar Value Chain We have fully integrated our sugar factory with the distillery, co-generation and bio-compost units. Most of the sugar we produce confines to EU grade. The result is energy conservation, optimal utilization of by-products, cost savings and most importantly, a product portfolio that includes specialty sugars, ethanol, power and organic manure.

Quality Control. From The Farm To The Manufacturing Floor At SASPL We are fully compliant to world-class quality standards. Our quality control efforts extend from the lab to the farmland to the manufacturing floor. We procure cane varieties noted for their quality and yield attributes. Improved cane varieties, cane seed sets are provided to farmers. Based on these findings, a continuous feedback is provided to farmers, with whom we are in close contact at every stage of the crop cycle.

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Power Generation



Bagasse is used as a major fuel source for power cogeneration. This cogeneration benefits the environment by reducing the greenhouse gases (GHGs) in the atmosphere.

We at SASPL generate 38 MW of power from modern co-generation plant. We installed spent wash fire boiler i.e. 28.3 TPH , 44 kg/cm² & 3500 C with 2.6MW generation and achieved Zero Liquid Discharge.

Distillery



SASPL is one of the leading organization in Maharashtra having production capacity 60 KLPD Wash to Rectified Spirit / Extra Neutral Alcohol & 60 KLPD Absolute Alcohol (Ethanol). Factory has adopted modern technology like Vacuum Multipressure distillation, integrated type Evaporation & Molecular sieve based Absolute Alcohol (Ethanol) Plants supplied by Praj Industries Limited, Pune.

Our Distillery Plant is fully atomization with world-class quality standards. Great care is taken to maintain international standards of hygiene and handling as well as we strictly follows standard operating process with good manufacturing practices & good laboratory

practices. Thereby we ensuring product integrity & have a benchmark of our Alcohol products in International market.

We have a fully atomized Sugar factory with the Co-generation, Distillery Unit & Integrated Evaporation Plant followed by Condensate Polishing Unit & Incineration Boiler. The best result is energy conservation, optimum utilization of by-products, Cost savings and most important are we achieving 100% Zero Liquid Discharge by recycle condensate water which is generated from Distillery & Sugar factory & total concentrated Spent Wash quantity is given to Incineration Boiler.

Soil Testing Laboratory



Increased productivity soil crop is vitally associated with not only high yielding seeds, chemical fertilizers and irrigation water application but also with the Structure, Texture and Health of the Soil. From this point of view, Shri Ambalika Sugar Private Limited. along with Department of Agriculture, Maharashtra has established a soil testing laboratory at factory site to test soil, water, plant and fertilizer sample. Farmers are guided for how to take soil and water sample, time of sampling, place of sampling, providing sampling information for laboratory analysis and further consideration, for amelioration and reclamation of acidic and sodic soil respectively. On the basis of soil test report the fertilizer recommendations are given

for different crops and according to targeted yield approach concept of State Agricultural Universities for sugarcane.

Factory has appointed highly qualified and experienced staff for the Soil Laboratory.

Function Hall



Factory has made available a neat & clean Function Hall – Shri Ambalika Karyalaya – for celebrating social functions such as weddings, birthdays, naming ceremonies and other social events. It has a spacious marriage hall, dining hall, Lawn, fully furnished rooms for bride & groom with 24 hrs. water & electricity supply.

Shopping Complex



A multipurpose Shopping Complex with 53 Shops is built on factory premises and available on rent to run small business.

Our responsibility towards society



While SASPL continues to make life sweeter it always had sight on making life of corporate citizen sweeter. Corporate Social Responsibility was always on agenda.

Objectives The aim of CSR policy is to give a helping hand to pull up the underprivileged and economically weaker sections of the society and contribute for growth and development of society as a whole.

OBJECTIVE

OF STUDY

OBJECTIVE OF THE STUDY

The following of the objective of the study

- ❖ To study the cost of production.
- ❖ To identify the process of manufacturing.
- ❖ To identify the difficulties of installation of cost accounting system.
- ❖ To study of the principles of the process costing.
- ❖ To study of the elements of the process cost.
 1. Material
 2. Labour
 3. Direct expenses
 4. Overheads

REVIEW OF

LITERATURE

Review Of Literature

Process costing is an alternative method of cost accounting. Like job costing, even process costing is a basic method by which costs are accumulated by processes. In the case of job costing, costs are charged to each individual customer.

This becomes necessary since each order of an individual customer is different from that of the other. Being different, each order requires different amounts of material, labour and overhead. Process costing is not the same as specific order costing. Consequently, costs need not be collected and charged to a specific order.

In mass producing industries where like units pass through different stages of production, the adoption of process costing necessitates cost accumulation by these stages. Each stage is known as a process. Like units move from one process to another till the stage of completion. Output of the earlier process becomes the input of the later process.

Process Costing refers to a method of accumulating cost of production by process. It represents a method of cost procedure applicable to continuous or mass production industries producing standard products. Costs are compiled for each process or department by preparing a separate account for each process.

Features of Process Costing

- The production is continuous.
- The product is homogeneous.
- The process is standardized.
- The output of one process becomes the raw material of another process.
- The output of the last process is transferred to finished stock.
- Costs are collected process-wise.
- Both direct and indirect costs are accumulated in each process.
- If there is a stock of semi-finished goods, it is expressed in terms of equivalent units.
- The total cost of each process is divided by the normal output of that process to find out the cost per unit of that process.

Objective Of Process Costing :

- (i) To calculate the cost of production of each process and each unit in the different processes.
- (ii) To calculate the cost of production of joint products and by-products separately.
- (iii) To distribute the joint expenses on the various products produced.
- (iv) To know the wastage in each process of production. The wastage may be normal or abnormal. There can be abnormal gain also when the actual production is more than the expected production. The quantity as well as the values of these losses can be known through the process costing.
- (v) To calculate the profit or loss of each process as the product may be sold after completing any of the process on the raw material.
- (vi) To control the cost of production at the level of each process so that overall cost of production may remain under control or may be reduced.
- (vii) The process costing of each process provides the base for the valuation of opening stock and closing stock of each next process. As the cost of production of the previous process is considered the cost per unit of opening as well as closing stock of the next process.

Types of Process Costing :

Weighted Average Cost:

The weighted average cost is one of the simplest process costing method. Where all the costs involved in all the processes are calculated together to calculate the total process costing.

Standard Costs:

There is the slightest difference between the weighted average cost method and the standard cost method. In the standard cost method, only the standard cost of a production process is assigned to each department at the place of the actual cost.

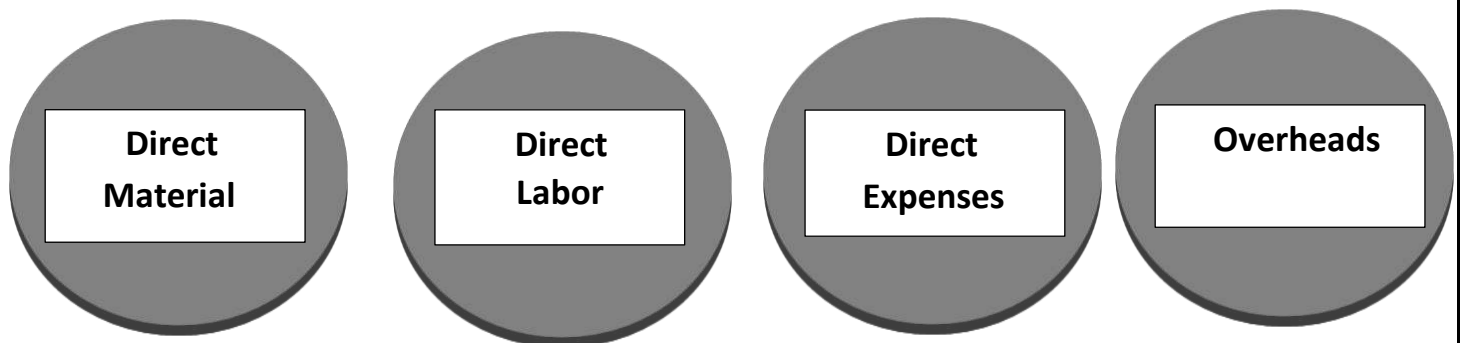
When the total cost is obtained by calculating the standard cost, then the difference between actual cost and standard cost is charged to the variance account.

First In First Out (FIFO) Costing:

First In First Out is the most complex process of process costing. This process costing method involves various layers of calculation. For example, the uncompleted product cost and the production of the product in the current process are calculated together.

4 Main Elements of Production Cost :

The following are the main elements of production cost in process costing:



(i) Direct Material:

Under process costing generally all the material required for production is purchased and issued to the first process. The output in whatever form of the first process becomes the raw material for the next process and so on. In different processes additional material may be added as per the nature and the requirement of the product. The whole of material issued or used for the process is shown in the debit side of the process account.

(ii) Direct Labour:

The payment of wages or salaries to the workers engaged to carry out the work of that particular process is debited to that process for which it is paid. As the manufacturing procedure becomes more and more automatic or capital intensive there the labour expenses start

decreasing and overheads start increasing. Whatever the labour cost of the process is shown in the

(iii) Direct Expenses:

All those expenses which are specially incurred for a process like corks, bottles, bags or primary packing material is the direct expenses incurred for that product or process.

(iv) Overheads:

Overheads can be factory overheads, office overheads and selling and distribution overheads. All these overheads expenses are distributed or apportioned among all the processes on a reasonable and relevant base.

Terminologies Under Process Costing

- Normal loss.
- Abnormal loss.
- Abnormal gain.
- Scrap.
- Waste.
- Defective units.
- Spoilage.

Normal Loss

This is also called **expected loss** in the production process. They are always provided for in the production budget and the normal loss is always sold using scrap value that will be provided by the management.

Causes of Normal Loss

- ❖ The inefficiency of workers
- ❖ Machine breakdown
- ❖ Power failure
- ❖ Industrial action (strike)
- ❖ Defective raw materials

Abnormal Loss

This is also called an unexpected loss in the production process. They represent the losses that are deemed to be above the normal loss. An abnormal loss is difficult to be predicted hence they are not always provided for in the production budget. They are always valued using the value of the good unit.

Abnormal Gain

This is when the final output is greater than the expected output/units. They are also valued using the value of the good unit.

Scrap Value

These are parts of the raw materials that are no longer required for production because they are outdated or useless as a result of the production process.

Waste

These are also part of the raw material that is no longer used in production and their value is always small if they are to be sold.

Defective Units

These are unit produced but are not up to the standard set by the management hence they are returned for reprocessing to meet the standard.

Spoilage

These are the unit produced but they are not up to the standard set by the management hence they are sold up immediately.

FORMAT OF PROCESS ACCOUNT

Dr.			Process I A/c.			Cr.		
Particulars	Units	Rs.	Particulars	Units	Rs.			
To Basic Material	xxx	xx	By Normal Loss	xx	xx			
To Direct Material		xx	By Abnormal Loss	xx	xx			
To Direct Wages		xx	By Process II A/c.	xx	xx			
To Direct Expenses		xx	(output transferred to					
To Production Overheads		xx	Next process)					
To Cost of Rectification of Normal Defects		xx	By Process I Stock A/c.	xx	xx			
To Abnormal Gains		xx						
	xx	xxx		xx	xx			

Why use Process costing?

- Process costing helps calculate product cost per unit. The cost of finished goods is considered as the cost of goods while calculating the sales revenue made by the company.
- Process costing is useful in those companies which produce products in bulk but sell products singly. For example, toys are produced in bulk together but are sold individually.
- A small difference in the production cost of a product might make a huge difference in the total profitability. Therefore, it

is important to keep a constant eye on the daily production cost.

- Process costing helps managers to keep a check on the manufacturing budget and in this way, they can make sure that they don't cross the budget limit and the manufacturing costs of different months can be compared to make more establish a budget in the coming months.
- There is certain material which gets parted in a process. By using process costing, you can give value to those materials used.

RESEARCH
METHODOLOGY AND
DATA COLLECTION

Research and Methodology

The subject of my project is process costing. A brief explanation of how the project was done is mentioned here.

The detail study of each element was considered the project was art ward by first going in to details of the subject. The books of cost accounting text book by sultan Chand and sons in Himalaya publication was found to be of great help.

The study is primarily report of the & quot; SHRI AMBALIKA SUGAR PVT. LTD. & quot; After going through all the theoretical aspects of structure of service costing is formulated. The project is divided in to separate chapter and topics which gives a clear-cut idea on different aspects of the subject. By adopting the above research methodology. I have tried to present comprehensive and practical view on the subject undertaken for the study.

DATA COLLECTION :

Data Collection are of two types they are as following

1. PRIMARY DATA COLLECTION.
2. SECONDARY DATA COLLECTION.

1. Primary Data Collection:

Primary data are generated when the researcher employing mail questionnaire, telephone survey and observation and experiment investigation particular problem at hand.

2. Secondary Data Collection:

The data are the information which are attend the indirectly. The data which is collected from document of the individual are known as secondary data This information collected from factory record as annual report etc.

Analysis &

Interpretation

Shri Ambalika Sugar Pvt. Ltd. is desirous to expand its two units sugar & distillery at the existing land and establishment, thus-

#	Production Unit	No.	Cat	Unit	Existing	Add/ New	Total
1	Distillery	5(g)	A	KLPD	60	90	150
2	Sugar	5(j)	B	TCD	7500	4500	1200
3	Co-Gen Power	1(d)	A	MW	38	--	38

The Notification no. S. O. 3067(E) as amended on 1st December 2009 has covered this type of industries under its entry shown above. With Screening it is necessary for Shri Ambalika Sugar Pvt. Ltd. to approach Ministry of Environment and Forests (MoEF), New Delhi for Environmental Clearance for all these three units. This Pre-feasibility Report is prepared for forming a framework for EIA study, Scoping and finalizing the Terms of Reference.

Form I, as is prescribed by the said Notification is duly filled up and submitted. This Prefeasibility Report is an accompaniment to the same. The Form I contains details regarding Justification of the project, Nearby Land Use, Resources, Process, Pollution Control, Aesthetics, Risk Involved, Consequent Developments and Environmental Sensitive Issues.

RESOURCES

Raw Materials & Byproduct generated:

A) Sugar & Co-gen:

The capacity of the sugar unit after expansion shall be 12000 TCD. For this the main and sole raw material is sugarcane. For the manufacturing support, chemicals are needed. Some chemicals in small quantity are used for supporting. The following raw materials will be used.

The capacity of the existing Co-gen unit is 38 MW in season and 12.5MW in off season. For this the main and sole raw material is quality water with bagasse as main fuel. For the manufacturing support, agricultural residue is needed. Some chemicals in small quantity are used for water purification/de-mineralization. The following raw materials will be used.

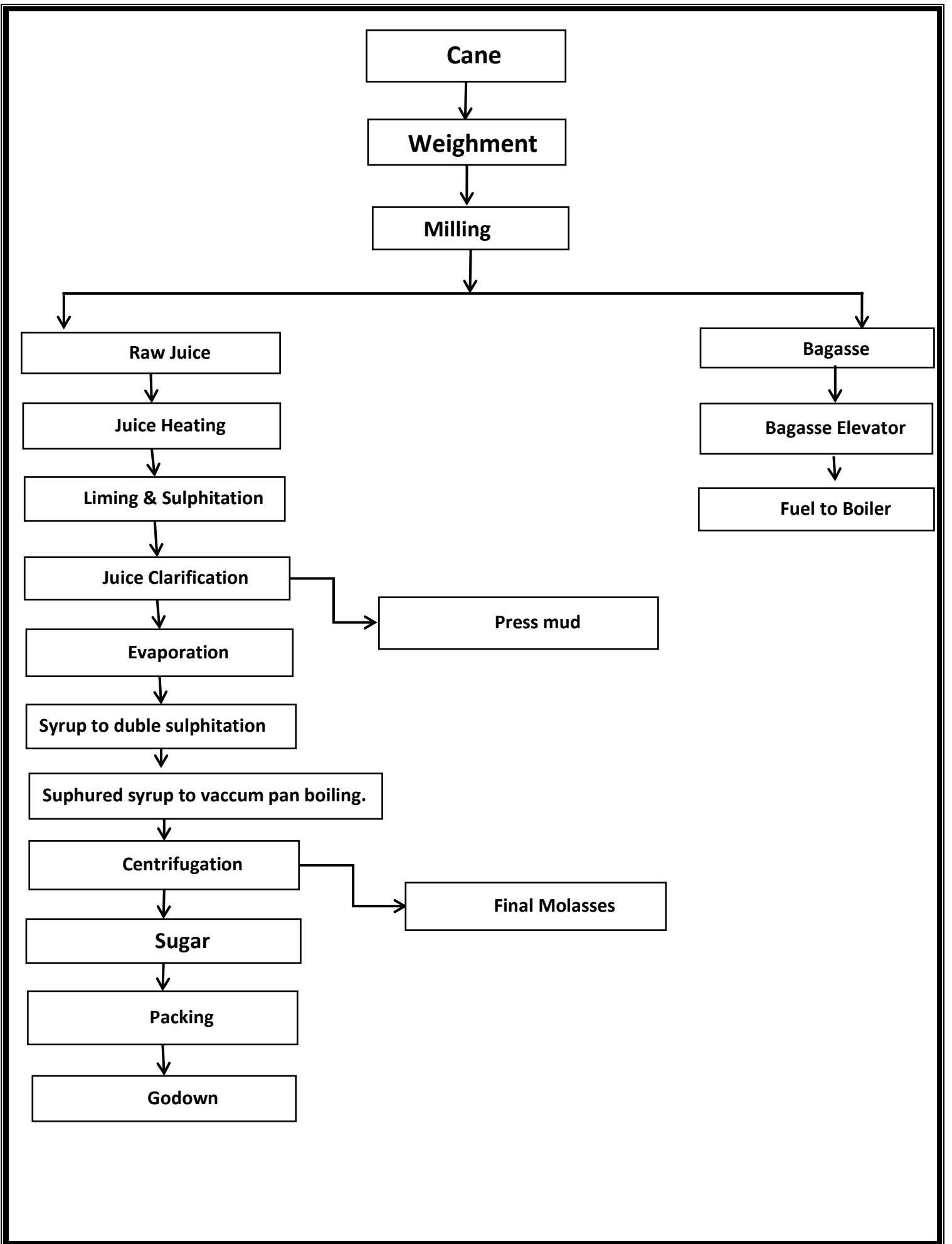
Item	Existing	Addit- ional	Total Required	Particulars
Sugarcane	225000	135000	360000	Available in District
Lime	337.5	216	553.5	Used for keeping proper environment for process. Available from Pune & Mumbai market.
Sulphur Dioxide	101.25	60.75	162	
Phosphoric acid	85.5	51.3	136.8	
Byproduct generated from sugar unit				
Bagasse consumption for co-gen	34740	--	34740	Self Existing Bagasse generation 67500 & bagasse generated from proposed sugar unit will be 40500
Molasses C grade generated	9000	5400	14400	Molasses generated by own sugar unit if
OR				

Molasses B heavy grade	14625	8775	23400	after expansion of sugar unit
OR				
25% of cane Juice	56250	33750	90000	

PROCESS

(A) Sugar Unit -

This industry proposes to additionally establish sugarcane based 4500 TCD Sugar mill. The peculiarities of manufacturing process are as follows, This is a simple three step process namely Cane milling, Evaporation and Crystallization. The standard flow sheet as will be adopted can be given as,



Most of the sugar factories in India follow double sulphitation process and produce plantation white sugar.

The major unit operations are shown in figure these are,

1. Extraction of juice
2. Clarification
3. Evaporation
4. Crystallization
5. Centrifugation

● **Extraction of Juice**

The sugarcane is passed through devices like knives for cutting the stalks in to chips before being subjected to crushing in a milling tandem comprising 4 to 6 three roller mills. Fine preparation with its impact on final extraction, is receiving special attention & shredders & particularly the fibrizers are gaining popularity. The mills are of modern design, being equipped with turbine drive, special feeding devices, efficient compound imbibitions system etc. In the best milling practice, more than 95% of

the sugar in the cane goes into the juice, this percentage being called the sucrose extraction or more simply the extraction. A fibrous residue called bagasse; with a low sucrose content is produced about 25 to 30 % of cane, which contains 45 to 55% moisture.

● Clarification

The dark-green juice from the mills is acidic (pH 4.5) & turbid, called raw juice or mixed juice. The mixed juice after being heated to 65 to 75 °C is treated with phosphoric acid, sulphur dioxide & milk of lime for removal of impurities in suspension in a continuously working apparatus. The treated juice on boiling fed to continuous clarifier from which the clear juice is decanted while the settled impurities known as mud is sent to the field as fertilizer. The clear juice goes to the evaporators without further treatment.

● Evaporation

The clarified juice contains about 85 % water. About 75% of this water is evaporated in vacuum multiple effects consisting of a succeeding (generally four) of vacuum boiling cells arranged in series so that each succeeding body has higher vacuum. The vapours from the final body go to condenser. The syrup leaves the last body continuously with about 60% solids & 40% water.

● Crystallization

The syrup is again treated with sulphur dioxide before being sent to the pan station for crystallization of sugar. Crystallization takes place in single-effect vacuum pans, where the syrup is evaporated until saturated with sugar. At this point 'seed grain' is added to serve as a nucleus for the sugar crystals & more syrup is added as water evaporates. The growth of the crystals continues until the pan is full. Given a skilled sugar boiler (or adequate instrumentation) the original crystals can be grown without the formation of additional crystals, so that when the pan is just full, the crystals are all of desired size & the

crystal & syrup form a dense mass known as 'massecuite'. The 'strike' is then discharged through a foot valve into a crystallizer.

● Centrifugation

The massecuite from crystallizer is drawn in to revolving machines called centrifuges. The perforated lining retains the sugar crystals, which may be washed with water if desired. The mother liquor 'molasses' passes through the lining because of the centrifugal force exerted & after the sugar is 'Purged' it is cut down leaving the centrifuge ready for another charge of massecuite . Continuous centrifuges may purge low grades. The mother liquor separated from commercial sugar is again sent to pan for boiling and recrystallization. Three stages of recrystallization are adopted to ensure maximum recovery of sugar in crystal form. The final molasses is sent out the factory as waste being unsuitable for recovery of sugar under commercial condition from economical point of view.

FINDING AND

SUGGESTIONS

FINDINGS & SUGGESTIONS

The factory can use new technology in sugar production.

The factory can provide employment in their local people.

The company can used the method of the optimum utilization of resources to have the greater usefulness of each and every thing related to the process.

The factory can follow the regulaion given by the government of india to have to be compliance with the format and procedure given by the government to be followed in the india.

CONCLUSION

CONCLUSION

In this study is attempt to made analyze the cost analysis of the sample unit. Since the Shri Ambalika Sugars LTD. Is facing heavy competition in an around area of region, it is essential to focus on the object of cost, profitability etc.

Process costing may be used when identical items are mass produced and manufacturing may involve more than one process.

QUESTIONNAIRE

QUESTIONNAIRE

- What type of product do you generally make?
- Do you have your own factory premises?
- How you deal with the material used in the process?
- where you make the entry of the expenses related to the process?
- Are you satisfied with the ongoing technologies or would you like to upgrade them?

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BIBLIOGRAPHY

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NAME :-

SHAIKH MUSKAN
HUSEN

CLASS :- SY BBA (CA).

SUB :- ENVIRONMENT
PROJECT....

CLG :- R.K.M.M.A. NAGAR

SUBJECT :-

GLOBAL WARMING

Global Warming :-

Intro :- global warming is the major atmospheric issue all over the world. our earth surface becoming hot day by day by trapping the sun's heat & rise in the level of atmospheric carbon dioxide. The bad effects of it increasing day by day & causing major problems to the living of human being.

It had become one of the subjects of big social issue which need social awareness to a great level people should know its meaning causes, effects & solutions to solve it immediately people should come fourth together & try to solve it in order to save life on the earth.

Global warming is a big issue of the atmosphere on the earth which cause continuous rise in the surface temperature of the Earth. It has been estimated that in next 50 or 100 years the temperature of earth would be increased to a great level which would create big problem of living on earth. The highly known & most basic causes of increasing the Earth's temperature is continuous rise in the carbon dioxide.

From the Stone Age to the modern era man has come a long way. In his pursuit of comforts of life, he ignored the threat of pollution & environmental degradation caused by industrialization.

Global warming is not new as this process occurs naturally & keeps the Earth's temperature about 50 degrees Fahrenheit warmer than it would be otherwise. Without this natural cover, Earth's surface would be colder than it is today, making the planet freezing & devoid of life.

Global warming is the term used to describe a gradual increase in the average temperature of the Earth's atmosphere & its oceans, a change that is believed to be permanently changing the Earth's climate.

There is a great debate among many people, and sometimes in the news, on whether global warming is real (some call it a hoax).

But climate scientists, looking at the data & facts agree the planet is warming.

- What is global warming ?
- What does it mean's ?

changes Resulting from global warming may include rising sea levels due to the melting of the polar ice caps, as well as an increase in occurrence & severity of storms & other severe weather events.

- What causes the Earth climate to change ?

Ans :- Green House effect.

- What is GreenHouse effect ?

The GreenHouse effect is the process by which radiation, from a planets atmosphere, warms the planet surface to a temperature above what it would be without its atmosphere.

Ex: Carbon dioxide (CO_2)

Ozone (O_3)

Nitrous oxide (N_2O)

Methane (CH_4)

- Deforest :-

What is Deforestation ?

It is Activity of cutting out trees in the forests in with the propose of developement of that

particular place, re-sourcing the raw material to process goods like papers.

① Effects of Deforestation :-

Deforestation can have a negative impact on the environment. The most dramatic impact is a loss of habitat for millions of species. Eighty percent of Earth's land animals & plants live in forests & many cannot survive the deforestation that destroys their homes.

Reduce our Consumption of Fossil Fuels :

Because greenhouse gas emissions are tied very closely to our energy consumption, using less fossil fuel based energy puts fewer greenhouse gases into the atmosphere. This will help slow global warming.

Reduce In-later Waste :-

Saving water reduces carbon pollution, too. That's because it takes a lot of energy to pump, heat, & treat your water. So take shorter showers, turn off the tap while brushing your teeth, & switch to water saving labble fixture & Appliance.

विद्यार्थीनीचे नाव - निकळे माधुरी शिवाजी

वर्ग - S.Y. BBA(CA)

विषय - पर्यावरण प्रकल्प

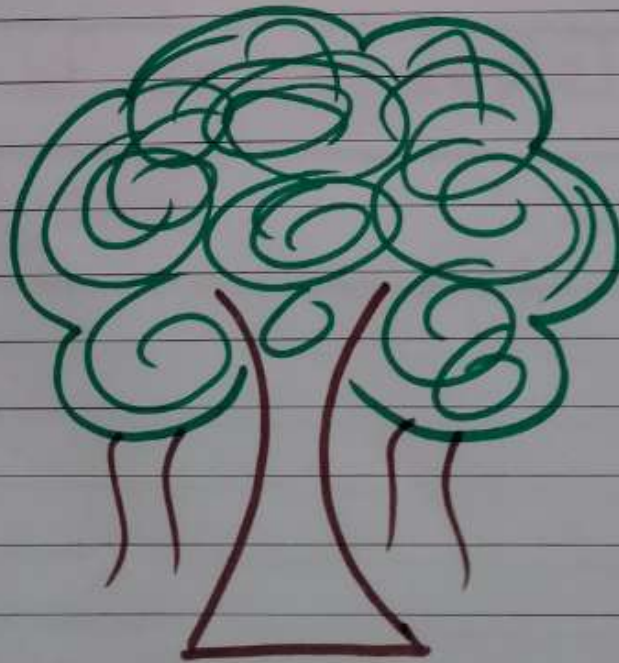
प्रकल्पाचे नाव - ओझोन डिप्लिशन

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महाविद्यालय,

अहमदनगर.

सागदिशिक - निर्मला देकर मॅम.



INDEX

No	Title	Page NO.
1)	Introduction	3
2)	Ozone layer	4
3)	Use of Ozone layer	4
4)	Ozone Hole.	5
5)	Ozone deletion	6
6)	Cause of ozone depletion	7
7)	Effects of ozone depletion.	9
8)	Conclusion.	10

Introduction

Many of human activities are badly affecting the atmosphere. Ozone depletion is one of those examples. Life is protected from UV rays by stratospheric ozone layer which acts as shield or sun screen. Approximately 90% ozone is present in stratosphere at the height of 10 to 17 kilometer and is called ozone layer while remaining 10% is present in troposphere. Medium frequency UV radiations (200 nm to 315 nm) absorbed 97 to 99% by the ozone layer. Ozone (O_3) is colourless just like oxygen (O_2) but it has very harsh odour. It is very rare as compare to oxygen. It is estimated that out of 10 million air molecules about 2 millions are of O_2 & only 3 are of ozone.

The process of formation is called as photolysis. When UV radiations from sun strike the O_2 molecules, it causes splitting of O_2 . Oxygen molecules react with oxygen atoms in the upper atmospheric to form ozone. Stratospheric ozone is measured from the ground in units called "Dobson unit". Now we will see what is ozone depletion & how it is affecting on human health & discuss some recommendations to minimize ozone depletion & its atmospheric effects on human health.

Ozone layer

The ozone layer is basically naturally occurring gas in the region of stratosphere, where ozone particles are accumulated. Ozone layer is also naturally broken down but there is a balance between its formation & natural depletion. As a result the total amount of ozone remains constant but ozone layer thickness varies with altitude & seasonal change. Ozone concentration is highest between 19-23 km. Most of ozone is formed at equator where there is maximum sunshine but with winds it travels at high altitude and get accumulated in stratosphere.

Use of Ozone layer

The ozone layer acts as a shield for life on earth. Ozone is a good trapping a type of radiation called ultraviolet radiation, or UV light, which can penetrate organisms protective layers, like skin, damaging DNA molecules in plants & animals.

→ Ozone Hole ←

Ozone hole is created in region where ozone layer has been depleted. The term "Ozone hole" is applied when the depletion level is below 200 Dobson unit (D.U). Ozone holes are first discovered in Antarctica in 1970 few years ago ozone holes are discovered in arctic region since 2000 rate of ozone depletion is increasing 0.5 percent per year. Due to depletion of ozone UV rays are penetrating in troposphere & leading to more ozone formation in troposphere which is causing injurious effects on our health. as ozone is toxic for our body.

Ozone Depletion

The main cause of ozone depletion & the ozone hole is manufactured chemicals, especially manufactured halocarbon, refrigerants, solvents propellants & foam blowing agents (chlorofluoro carbons (CFCs), HCFCs, halons), referred to as ozone depleting substances (ODS). These substances are transported into the stratosphere by turbulent mixing after being emitted from the surface, mixing after being much faster than the molecules can settle. Once in the stratosphere, they release halogen atoms through photodissociation which catalyze the breakdown of ozone (O_3) into oxygen (O_2) both type of ozone depletion were observed to increase as emissions of halocarbons increased.

→! Causes of ozone depletion !←

1) Chlorofluorocarbons :-

Ozone depletion occurs when the natural balance between the production & destruction of stratospheric ozone is disturbed. Although natural phenomenon can cause ozone depletion but human activities such as CFCs are now accepted as major cause of depletion. All ozone depleting chemicals contain chlorine & bromine. CFCs are highly volatile & non combustible so they are very quickly evaporated & can easily reach in stratosphere where ozone is present here they start depleting ozone molecules. These CFCs have also adverse affects on human health. According to the chemical model for ozone destruction proposed about 20 years ago the photolysis of Cl_2O_2 is key to ozone depletion reaction. But now atmospheric researcher studied that the rate of this reaction is not extremely high as it was thought previously so we can no longer say that CFCs are the main cause of ozone depletion.

Global warming :-

Global warming also leads to ozone layer depletion. due to it green house effect most of the heat is trapped in troposphere.

which is the layer below the stratosphere. As well we know ozone is present in stratosphere. so heat don't reaches troposphere & it remain cold as recovery of ozone layer requires maximum sunlight & heat so heat don't it don't lead to depletion of ozone layer.

Nitrogenous Compound :-

Nitrogenous compounds emitted by human activities in small amount like NO , N_2O & NO_2 are considered to be greatly responsible for the depletion of ozone layer.

Unregulated Launches of Rocket :-

Another

major cause of large scale ozone depletion in rocket launches. It has been studied that unregulated rocket launches can result in much more ozone depletion than CFC's. It is essential that rocket launches will be let unregulated then it would cause huge ozone loss by the year 2050 than the CFC's have done.

EFFECTS OF OZONE DEPLETION :-

Effects on eyes :-

The major cause of blindness in this world is cataracts. There would be 0.3% - 0.6% increase in risk of cataract if there will be 1% decrease in ozone level. Eye lens can be damaged by oxidatives agents. Oxidative oxygen produced by UV radiation can severely damage eye lens & cornea of eyes is also badly damaged by UV radiation.

Effect on human Immunity :-

Exposure to UV radiations can also result in suppression of immune response to skin cancer, infectious diseases & other antigens. The immunosuppression is due to change in skin photoreceptors & antigens presenting cells that are brought by UV radiations. More increase in depletion of ozone result in more decrease in immune system.

effects of hydrogen peroxide on human health-

Due to stratospheric O_3 depletion Highly reactive species like hydrogen peroxide is produced, which effect on human health. It is ideal photochemical maker due to its long life & stability. hydrogen peroxide is toxicant & it pollute drinking water.

→ Conclusion ←

Ozone layer is continuously depleting which is highly alarming situation of today. chlorofluro carbons are major cause of ozone depletion. The substances should be banned or we should use their alternatives so that in future we can protect ourselves from the harmful effects of UV radiation.

Human eye & skin are the most exposed part of the body to these radiations. so there is high degree of incidence of blindness & skin cancer disease increasing day by day with the depletion of ozone layer so we should use sunglasses & full body clothes especially in summer when there is high intensity of sunlight so that we can protect our body from harmful UV radiations. we should also use sun block creams to our most exposed parts of body like face.

We should also don't consume water from lakes as it may contain high quantity of hydrogen peroxide which is toxic to our bodies, & we should consume water for drinking from clean water source.

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CLASS -: SYBBA (CA)

SUBJECT -: EVS

COLLEGE -: Radhabai Kale

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Project Name -: Composting

What is composting

Composting is a form of environmentally appropriate disposal of organic solid waste (leftovers from cakes, vegetables, animal waste, etc). which allows you to use the compost, thanks to biological decomposition by soil microbial action. It is an aerobic process and controlled that turns organic waste with unpleasant characteristics (odour, pathogens, etc) in an agricultural input, of pleasant odour and free of pathogens.

What are the benefits of composting.

Composting allows to produce organic compost, essential to the enrichment of the soil fertility in agriculture or in gardens, in addition to reducing waste sent to landfills

How can Master Ambiental work with you?

Master Ambiental has a trained multi-disciplinary team for composting

project, in addition to training and monitoring, ensuring the best solution for disposal of organic waste.

Microorganisms

With the proper mixture of water, oxygen, carbon, and nitrogen, micro-organisms are able to break down organic matter to produce compost. The composting process is dependent on micro-organisms to break down organic matter into compost. There are many types of microorganisms found in active compost of which the most common are:

- **Bacteria** - The most numerous of all the microorganisms found in compost depending on the phase of composting, mesophilic or thermophilic bacteria may predominate
- **Actinobacteria** - Necessary for breaking down paper products such as newspaper, bark, etc.
- **Fungi** - molds and yeast help break down materials that bacteria cannot, especially lignin in woody materials

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- protozoa - Help consume bacteria, fungi and micro organic material
- Rotifers - Rotifers help control population of bacteria and small protozoans
Composting organisms require four equally important ingredients to work effectively
- carbon - for energy. the microbial oxidation of carbon produces the heat, if included at suggested levels. High carbon materials tend to be brown and dry.
- Nitrogen - to grow and reproduce more organisms to oxidize the carbon. High nitrogen materials tend to be green and wet.
- oxygen - for oxidizing the carbon the decomposition process.
- Water - In the right amounts to maintain activity without causing anaerobic condition.

certain ratios of these materials will provide microorganisms to work at a rate that will head

up the pile. Active management of the pile is needed to maintain sufficient supply of oxygen and the right moisture level.

* Drawbacks of composting-

by-products are cost for site preparation and equipment, the lengthy treatment period, targeting final use of compost product, and environmental issues such as odors and dust. some investment in equipment and site preparation is required or recommended.

methods of composting

- Indore method
- Bangalore method
- coimbatore method
- coll pith composting technology
- site selection for composting
- Turning of material
- Moisture maintenance
- compost maturity

Assignment No. 1

Q.1 explain the need of environmental awareness.

① Environmental awareness is to understand the fragility of our environment and the importance of its protection.

② Promoting environmental awareness is an easy way to become an environmental steward.

③ The participate in creating a brighter future for your children.

④ Environmental education is a process that allows individuals to explore environmental issues, engage in problem & take action to improve.

Q.2 explain the concept of environmental?

Environmental studies is a multidisciplinary academic field which systematically studies human interaction with the environment.

It is a broad field of

Contaminants are introduced into the natural environment. For example, releasing inadequately treated wastewater into natural water bodies can lead to degradation of aquatic ecosystems. In turn, this can lead to public health problems for people living downstream.

Assignment No. 2

Page No.	
Date	

Q.1. What is air pollution? what state the causes, effects & measure that can be adopted to control the air pollution.

The environmental consequences of rapid industrialization have resulted in countless incidents of land, air and water resources sites being contaminated with toxic material & other pollutants.

Causes:

- ① Application of pollution control methods has demonstrated considerable effectiveness in controlling pollution problem.
- ② Particularity of appropriate technologies is based on a systematic analysis of the source and nature of the emission or discharge in question.
- ③ The interaction with the ecosystem and the ambient pollution problem to be addressed & development appropriate technologies pollution impact.
- ④ The air pollution control, Dietrich Schwaela & Berenice Goelzer.
- ⑤ Explain the importance & implications of taking a comprehensive

② What is water pollution? what are causes & effects water pollution & state the measure can be adopted to control the water pollution?

① What is water pollution?

The secondary treatment of water has been carried out then this can be reused in sanitary systems & agricultural fields. A very special plant, the water hyacinth can absorb dissolved toxic chemicals such as Cadmium & other such elements. is called water pollution.

effects of water pollution:-

Destruction of biodiversity
water pollution depletes aquatic ecosystems & triggers unbridled proliferation of phytoplankton in lakes.

- Contamination of the food chain
- lack of potable water
- Disease
- infant mortality.

Water Pollution results when

of study that includes the natural environment, the built environment and the relationship between them.

An example - A part of a business environment is how well customer expectations are met.

NAME : karale Nikita Babasaheb.

STD : SYBBA (A)

SUBJECT : EVS

TOPIC NAME : Industrial Pollution.

"INDUSTRIAL POLLUTION"

• Introduction of Industrial Pollution :

- 1) Industrial pollution is the pollution which can be directly linked with industry. This form of pollution is one of the leading causes of pollution worldwide. There are a no. of forms of industrial pollution. Industrial pollution can also impact air quality, & it can enter the soil, causing widespread environmental problems.
- 2) Industrial activities are a major source of air, water & land pollution, leading to illness & loss of life all over the world. The World Health Organization estimate that outdoor air pollution alone accounts for around 2% of all heart & lung diseases, about 5% of all lung cancers, & about 1% of all chest infections.

• Definition of Industrial Pollution :

Industrial pollution is the pollution which can be directly linked with industry. This form of pollution is one of the leading causes of pollution worldwide.

• There are different types of industrial pollution are :

- 1) Air pollution : Air pollution is a mixture of solid particles & gases in the air. Car emissions, chemicals from factories dust, pollen & mold spores may be suspended as particles. Ozone, a gas, is a major part of air pollution. When ozone forms air pollution, it's also called smog. Some air pollutants are poisonous.

2) water Pollution:

water pollution is the contamination of water bodies, usually are a result of human activities, water bodies include for example lakes, rivers, oceans, aquifers & groundwater. water pollution results when contaminants are introduced into the natural environment.

3) soil Pollution:

soil contamination or soil pollution as part of land degradation is caused by the presence of xenobiotics (human-made) chemicals or other alteration in the natural soil environment. It is typically caused by industrial activity, agricultural chemicals or improper disposal of waste.

• Effects of Industrial Pollution Related Human Health:

1) The Burning of Fossil Fuels:

Most of the air pollution takes place due to the burning of fossil fuels such as coal, oil, gasoline to produce energy for electricity or transportation. The release of carbon monoxide in high level indicates how much fossil fuel is burned.

2) Industrial Emission:

Particulate matter 2.5 & 10, Nitrogen dioxide, sulfur dioxide & carbon dioxide are key pollutants that are emitted from industries that use coal & wood as their primary energy sources of production of their goods.

3) Wild Fires :

Climate change is not just increasing wildfire but also spiking air pollution. Burning stubble & farm residue is also a major contribution to wildfire. It causes increased PM 2.5 in the air which collides with other harmful substances like chemical gas & pollen creating smog.

4) Open Burnings of Garbage waste :

Open burnings of garbage is much more harmful to your health & the environment than one may think. As per Engage EPW, Delhi Air pollution is choking public health. Delhi generates a whopping 9500 tons of waste every day, which makes it India's second waste dumping city. Burning of garbage waste can pose serious health risk including cancer, liver issues; can also affect the developing nervous system.

• Disadvantages of Industrial Pollution :

1) Environmental Disadvantages :

One negative byproduct of industrialization is environmental pollution that can adversely impact human health. When companies do not pay for the environmental damage they cause, or when these harms are not captured in pricing, this is considered a negative externality.

The cost burden is placed on human society in the form of deforestation, extinction of species, widespread pollution, excessive waste & other forms of environmental degradation.

2) Financial Disadvantages:

Industrialization results in a wider gap between the rich & poor due to a division of labour & capital. Those who own capital tend to accumulate excessive profits derived from their economic activities, resulting in a higher disparity of income & wealth.

3) Social Disadvantages:

Industrialization typically leads to the migration of workers to cities, automation of repetitive tasks. Due to these factors, factory workers tend to lose their individuality, have limited job satisfaction & feel alienated. There can also be health issues brought on by dangerous working conditions or factors inherent to the working conditions, such as noise & dirt.

• Causes of Industrial Pollution:

- 1) Lack of policies to control pollution.
- 2) Unplanned Industrial Growth.
- 3) Use of outdated technologies.
- 4) Presence of a large number of small scale industries.
- 5) Inefficient waste disposal.
- 6) Leaching of resources from our natural world.
- 7) Natural Resource Use.

• How can industrial pollution be prevented?

- 1) Make the switch to clean Energy Sources.
- 2) Use Technology to Destroy Pollutants at the source.
- 3) Choose Non-Toxic Materials to Manufacture Goods.
- 4) Deploy More Effective Forecasting Planning Techniques.
- 5) Clean Air Is Good For the Environment & Good For Business.

• Reduce Industrial Pollution:

- 1) Make the switch to clean Energy Sources:
Facilities that use coal or natural gas to generate electricity contribute to water & air pollution all over the world. Scientists also link these resources to breathing problems, heart attacks, cancers & other grave & chronic health problems. Paper & concrete manufacturing plants are some of the heaviest users of fossil fuels in manufacturing but they are far from alone.

- 2) Use Technology to Destroy Pollutants at the Source:
For cases where it's not feasible to switch to clean energy immediately, some manufacturers turn to a variety of technologies to destroy air pollution at the source before it enters the earth's atmosphere. These abatement technologies nullify the most destructive air pollutants, like those mentioned above, & reduce the ecological footprint of manufacturing sites.