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Abatement the raising temperature through different theory

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ABSTRACT

High temperature in summer is big challenge in front of the many region's. The current environment challenges with the temperature ratio in summer and there's refrigeration system which having some drawbacks to our environment just like global warming and another issue to our family which can't afford the current refrigeration system. According to many Research and survey the most of the region's in India become higher temperature ratio upto 45°C. So in that research we will discuss about the focus of enhancement present technology of refrigeration system to minimise the effect of the environment, temperatures and society issues.

Keyword: Temperature, Environment, Refrigeration, Global Warming, Technology

1. INTRODUCTION

As we know, India is a tropical country in which most of the regions experience very low temperatures during the winters and very high temperature during the summer seasons upto 50 °C. That is the temperature range between summer and winter seasons is very large. Hence it is not a pleasant experience and highly uncomfortable. Though economic method of cooling down the hot temperatures during the summer do not have wide variety of options. Air conditioners have high initial and running costs, which cannot be afforded by all the people in developing country like India. Air coolers are relatively cheap but provides unsatisfactory results; there is need for developing a cheaper room cooling system. Conventional air conditioner or presently available refrigeration system is one of the major contributors of CFCs into the atmosphere. An alternative type of cooling, which does not expel CFCs is highly desirable as one important step in the correction of this problem. So this is way adiabatic cooling is environmentally friendly because it or a passive cooling method that does not expel CFCs. It is 100% fresh air cooling which even helps to clean the air it cools. With the help of evaporative technology swamp coolers provides cooling at cheaper than the central air or larger air conditioner.

Cooler superior option for better cooling in hot weather. Also freeze is used widely for storage of food and other beverages in order to keep them fresh and storing them for longer period of time. But the refrigerant used in freeze to obtain cooling effect releases various gases which are harmful for environment and lifting problem like global warming, ozone layer deflection.

The main aim of this study to focus new concept and technology or multipurpose media to create the air cooler with natural refrigeration system that means incorporate a cooler with natural fridge. It will be economical as well as environment friendly.

2. METHODOLOGY

2.1 Area of interaction

Different Kind of refrigeration technique

I. Natural refrigeration

The natural refrigeration are those type of refrigeration with done by the naturally. There are several kind of natural refrigeration.

a) Use of Natural ice-

At most common category of natural refrigeration is that use of natural ice that are the obtained by the gathering ice in the colder driven and harvesting it during the winter and true natural cooling the use of ice to refrigerate and the Reserve food goes prehistory time.

b) Evaporative cooling :-

This is the another method under the name of nature refrigeration is known you evaporative cooling, for centuries the people have known that evaporation of water produce the cooling effect. The water permeate through the pores of the jar to its outer surface where it evaporates to the surrounding, absorbing its latent heat in part from the vessel, which cools the water. The same principle applies with human perspiration which cools the human body by releasing sweat and dissipating their metabolic heat. But this method is only effective in a dry climate and wouldn't work in a climate that is humid.

c). Cooling by Salt Solutions:-

In the 16th century, the discovery of refrigeration by using certain chemicals was one of the first steps toward artificial means of refrigeration. Certain salts, such as sodium nitrate, sodium thiosulfate, and sodium sulfite, when added to water, lowered the water's temperature. These substances absorb the heat and reduce the temperature of the solution due to endothermic process. In Italy, such a solution was used to chill wine and cakes. With the methods listed under the natural refrigeration, each of their application has their own limitations. They depend on the local condition and are uncertain due to their weather dependence.

II. Artificial/Mechanical refrigeration:-

Artificial or mechanical method of producing the cooling effect this is done by using specific artificial work. The first attempts to produce refrigeration mechanically dependent on the refrigerating effect of the evaporation of water. In 1755, William Cullen, a Scottish Physician and Professor of Chemistry and Medicine at the University of Edinburgh at that time, acquire low temperatures enough to make a small quantity of ice in his laboratory. The following year, he gave the first recorded public demonstration of artificial refrigeration. They used a pump to generate a imperfect vacuum in a container of diethyl ether thus lowering its boiling point and making it boil. That reaction soak up heat from the surroundings and lead to a making of small amount of ice. However, the operation was not yet practical and could be not used commercially, but it paved the way for the further evolution of artificial refrigeration. There several kind of refrigeration. When non-condensable gases are utilize, refrigeration can be achieved by two methodology such as:

(a) Isentropic Expansion of Gases:-

If swell high-pressure air or gas in a piston-cylinder mechanism, then the temperature of gas drop depending on the extend of swelling and the temperature of gas suit less than atmosphere. This cold gas can be utilised to cool the object or the system.

(b) Refrigeration by Irreversible Adiabatic Expansion of Gases (Throttling) or Joule-Thomson Effect:- To understand the Joule Thomson effect, it is very important to first understand Throttling process.

Throttling process: Throttling is an irreversible adiabatic process in which a gas is swelled up by a valve. It is an isenthalpic (constant enthalpy) process. After throttling a gas suit either cool or hot, this is known as Joule Thomson effect. It is interesting to know that there are two probability for temperature (rise or fall). It is due to pair of factors. In throttling action due to friction (provided by the valve) the pressure energy of the fluid turn into inter-molecular energy. Which effect in jump up of temperature. In throttling process the fluid expends which out-turn in the drop of temperature. Hence the stand up or drop down of the temperature of the fluid after throttling, depends on the dominating component.

(1) dominates the universal effect of throttling will be heating of fluid.

(2) dominates the universal effect of throttling will be cooling of fluid.

III. Steam-Jet Refrigeration:

This technique is one of the method employed by chemical envoy machines for achieving mechanical chilliness. visibly water is used here as refrigerant.

Steam-Jet methodology is essentially used in installations where chilled water is needed or the systems like cold depository where the temperatures required are excess of 5°C as water begin interchange its volume at 4°C and starts chilling at 0°C. The principle of flash cooling is worked in achieving the objective.

There are two important components in the system, (a) steam nozzle A and (b) the flash chamber. Also, there are two distinct circuits of fluids (i) steam flow circuit, (ii) water flow circuit in the system.

(a) Steam Flow Circuit:

High pressure steam is providing to the nozzle ingress at A. Here it takes with it any vapour flashed in the flash chamber. The vapour is in transit by the suction generated by the high velocity of steam flow in the nozzle.

Here the mixture enlarge in the converging portion upto the throat B. It is then squeeze to a pressure say 5 cmHg corresponding to 36°C temperature in the diverging diffuser. The com-compressed fluid passes on to the condenser. The condensate which contain of the flashed vapour and steam from grant source is pumped back to the boiler.

(b) Water Flow Circuit:

The chilled water needed is circulated from the flash chamber, by a pump on to the point of utilization, and the balance if any is returned back to the chamber as spray.

In the flash chamber low pressure of the order of 6 mm Hg is maintained because of suction of vapour by steam flow at nozzle. The flash point is therefore low corresponding to saturation temperature at that pressure say 5°C.

The water is chilled due to absorption from it of the latent heat needed for the evaporation of a certain fraction of water in the course of flashing. The quantity of water flashed in the chamber plus any other mass of chilled water drawn from the chamber (say for drinking or other purposes) is made up by an identical amount of fresh provide through the spray. It will be monitor that for obtaining water at 5°C, with a condensing temperature say 35°C, the operating pressures are 6 mm Hg and 5 mm Hg respectively, which are exceedingly low values. The compression ratio of approximately 8 also approaches the limit of efficiency operation. If temperatures below 0°C are required, antifreeze should be sum to water.

IV. Refrigeration by using Liquid-Gases:

As know that a liquid can be vaporized at any desired temperature by switching its pressure. Further, heat is required to be added to the liquid during sublimation when the liquid phase changes to the gaseous phase. Accordingly, a vaporizing liquid can to make refrigeration at any temperature. For case at a pressure of about 1 atm, ammonia may be made to boil at -33°C or at a pressure of regarding 5 atm. Freon -22 boils at 0°C. Hence in an arrangement in which a methodology containing some refrigerant in liquid form at a certain pressure is exposed to another system at temperature greater than refrigerating temperature.

Liquid Freon F-12 is provide to the evaporating chamber through a valve at a pressure of about 1 atm. Since the steaming temperature of F-12 at this pressure is - 30°C, heat flows from the surround space at 0°C and makes the F-12 boil. Thus the space will be cooled as long as there is a supply of liquid F-12 to the evaporating chamber. however, suffers from two important drawbacks:

- (a) The cost of replacing Freon-12 will be prohibitive as the evaporated vapour leaks out to the atmosphere.
- (b) If the system were to use some other refrigerant like ammonia, it may become a hazard to life due to its eject to atmosphere since it is a highly toxic and irritating fluid. To remove these drawbacks, it will be necessary to let the refrigerant fluid work in a closed loop and be used again and again

V. Thermo-Electric Refrigeration:

Thermoelectric effects refer to phenomenon involving the exchange of heat and electrical energy. Heating effect due to the drift of an electric charge in a resistor. The electric charge dissolution depends on the current flow I and the potential V according to the equation $P = VI$ or $P = VI = I^2R$. This kind of energy transformation is irreversible, although some thermoelectric reaction are reversible.

There are three thermoelectric effects.

They are:

- A. The See-beck effect,
- B. Peltier effect,
- C. Thomson effect.

A. Seebeck effect: When two dissimilar metals are connected to each other to form two junction and there are subjected to different temperature and electric current flow through it. This called as seebeck effect.

B. Peltire effect: When two dissimilar metals connected in close loop then external current forced to flow through close loop then one junction will get heated and other will become cool.

C. Thomson Effect: When temperature gradient exist along any one metal or both metal of thermocouple then junction emf may be slightly altered this effect is called as Thomson effect.

Non-conventional refrigeration systems are:

- (i) Magnetic refrigeration system
- (ii) Vortex-tube system
- (iii) Pulse jet refrigeration system
- (iv) Ultrasound refrigeration system

2.2 Temperature scenario overall India.

Temperature is major fundamental that directly affects human and natural systems. This chapter observed and projected changes in the mean and very high temperature over India. The surface air temperature, typically measured 2m from the ground and it varies from one area to another region within India. This temperature also fluctuates naturally is involved and decadal time scales in the background of changes in the climate, around the mean climate over a region . This includes variability in the El Nino–Southern Oscillation. The presence of internal variability places major limits with accuracy, which is a future indication of temperature. The internal variability becomes larger when averaging results over smaller areas, which is lead with larger uncertain at projections at the Indian countries scale, relative to that at a temperature projection is obtained from driving climate model with future forcing scenarios. It includes the response of the climate system to changing greenhouse gas concentrations, internal variability and uncertainties associated with differences between models. The multi-model ensemble averages out the internal variability and model differences to a large extent and provides a response of the climate system to forcing.

The decade of global land and ocean surface average temperature anomaly for 2011 to 2020 was the warmest decade on record, with a surface global temperature of +0.82°C above the 20th century average. This surpassed the previous decadal record (2001 to 2010) value of +0.62°C .Season is expected to pose a serious threat on Hemisphere land and ocean surface temperature was the highest record in the past 141-year +1.28°C above average. This was 0.06°C higher than the previous record set in a year 2016 result of human activities, and the present challenge is to predict how agriculture will respond to changes in the environment in future. The greenhouse gases are the primary agent for increasing global warming, which leads to elevated atmospheric temperature. Rising temperature during crop-growing seasons is an expected threat for crops. Understanding The molecular basis of phenomenon such

as it will help in genetic engineering or breeding of crops to make them tolerant to temperature stress either at the preproductive stage or at High leaf temperature is also a reason for drought, because plants lose the ability for cooling when availability of water is limited.

The most important direct impact is the role of raindrops, filter water, especially during heavy rains thunderstorms and cyclones, tornadoes, volcanoes and intensity of which are characteristic features of climate change. Similarly, soil erosion or soil destruction play a role in the harmful effect of greenhouse gases emission.

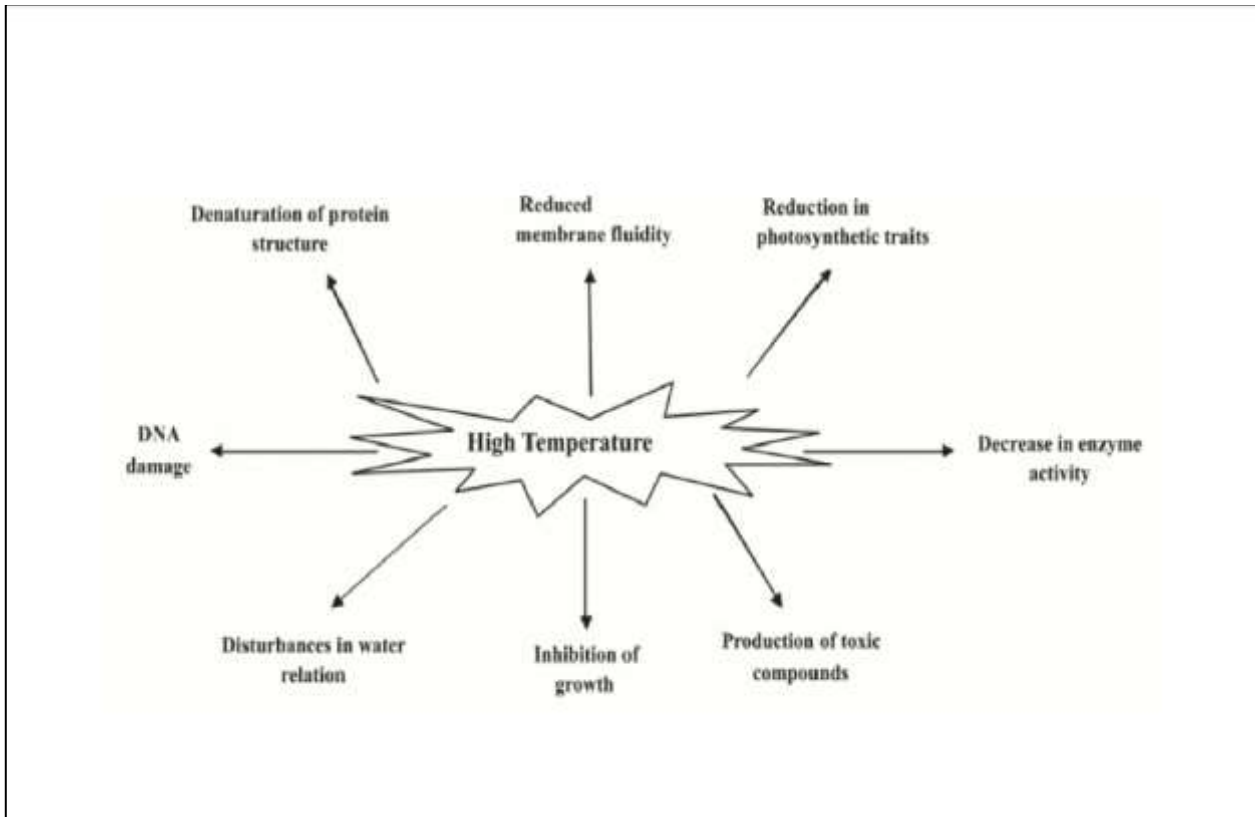


Fig. 1: Effect of temperature.

2.3 Survey of merchandising

According to many study and survey and we have to found that the percentage ratio of selling appliances in India which is published by statistics research department according to study, we have found that air conditioner and refrigerator is less than 50% over all India.

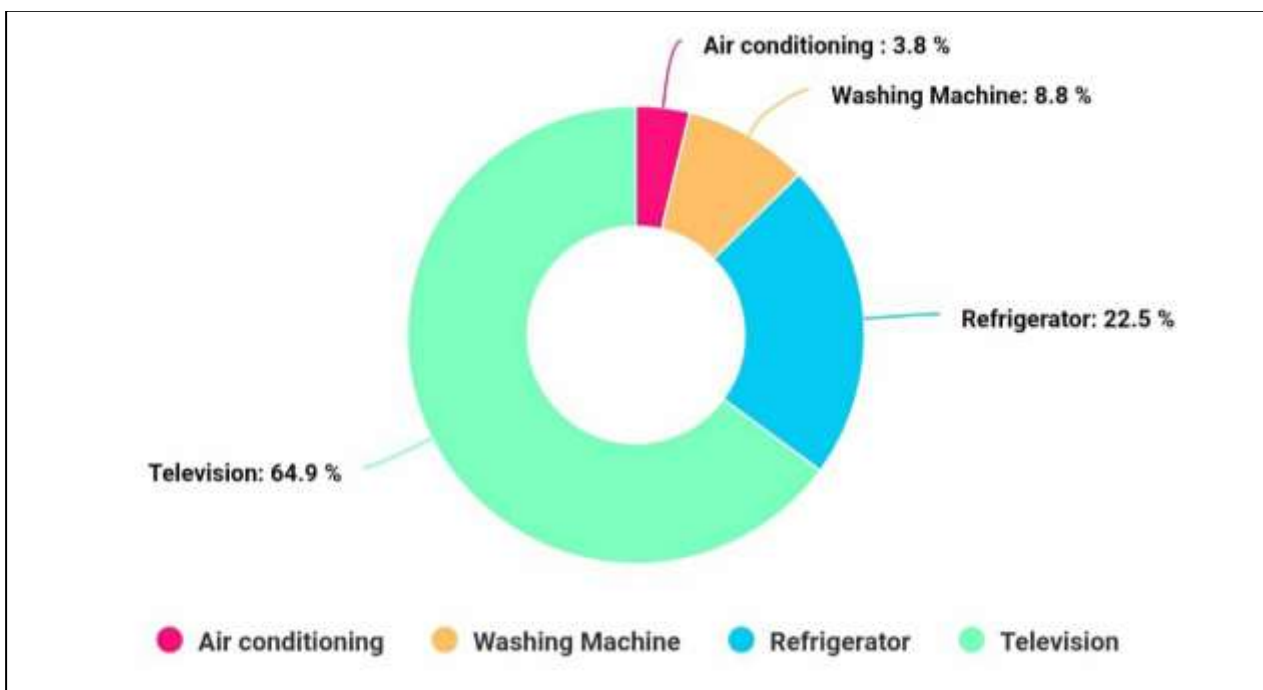


Chart.1. Percentage of selling.

3. RESULT OF ANALYSIS

Last few Year, the scenario of summer environment temperature has been changing or increasing continuously which is biggest obstacle in front of many region's . According to the many survey and research have to found that temperature of many zone in increase upto 45 °C over and above this also. Tablet show some temperature region in India.

Table 1: Hottest region in India

Sr. No	Zone	Temperature (°C)	
		Average (Apr-Jul)	Recorded (May)
1	Sri-ganganagar	41	50
2	Jhansi	46	48
3	Nagpur	40	48
4	Daltonganj	40	48
5	Bilaspur	45	49
6	Vijayawada	45	49
7	Rentachintala	45	52
8	Wardha	41	48
9	Delhi	47	48
10	Agra	40	49
11	Sambalpur	40	49
12	Machilipatnam	41	46
13	Kurnool	40	46
14	Phaladi	46	51
15	Churu	41	50.8

As the table show temperature zone recorded in India which is majorly effect on citizens of Proletariat society as can't afford heavy-duty appliance.The main aim of analysis and survey we should consciousness about temperature issue's , Proletariat society issue and environment issue ,according to analysis different article there has no any technique or technology to solve the all issue ,so that we have develop such technique or technology which help to overbear temperature issue's , Proletariat society issue and environment issue.

4. DISCUSSION

Data related to the different method of refrigeration so that the presently available refrigerator their energy consumption is very high and the current refrigerant used in the system which impact on the environment so the refrigerant in refrigeration system play dominant role to increase environment issues to temperature, has the heat to increase then it can be dangerous, causing illnesses such as heat cramps and heat stroke, or even death. Warmer temperature can also lead to a chain reaction of other changes around the world. That's because increasing air temperature also affect on the oceans, weather patterns, snow and ice, and plants and animals. National health portal (NHP) this agency dealing with overcome issue related to temperature and proletariat society, so that we should focus on create the advanced technology which is economical handling again the temperature cost and proletariat society.

5. CONCLUSION

I can be concluded that due to the rapidly multiplication of the temperature as per annum which directly impact on the environment. Temperature control practice should be improving in the recent year step towards the improvement need to accelerate in the term of concept or technique or Technologies to replacing all the ones change people to raise the society consciousness and change the people mentality because of this pick recruitment to developed an opportunity and proper control temperature system. Temperature control need more Social awareness about the development of Creative Technology, this is best way to maintain temperature issue with minimize consumption energy and cost of the appliances which directly impact on the temperature for environment. So most of the researcher are working on the numbers of project they can solve the issue of the temperature from the household level to industrial level which maintain health , environmental and society issues.

6. REFERENCES

- [1] G. Purnadurga, T.V. Lakshmi Kumar, K. Koteswara Rao, M. Rajasekhar and M.S. Narayanand “Investigation of temperature changes over India in association with meteorological parameters in a warming climate” *Int. J. Climatol.* (2017).
- [2] M Balasubramanian* and V Dhulasi Birundha** “Climate Change and Its Impact on India” September 2012.
- [3] 3 [1] Neha Mahanand, [2] Archana Nair “Decadal Variations In Temperature Variables Over India During The Period 1970–2018” Vol. 29, No. 7, (2020), pp. 2615-2625.
- [4] Robert S. Ross, T. N. Krishnamurti, Sandeep Pattnaik & D. S. Pai “Decadal surface temperature trends in India based on a new high-resolution data set ” 10 May 2018.
- [5] Madhuri Maheshwari, Gaurav Shrivastava, Bhanu Choubey “Study on Refrigeration System Designed for Low
- [6] Temperature ” February 2013.
- [7] Avdhesh Tyagi, Satyaveer Singh, Satyendra Chaturvedi, Rohit Sahu “Experimental Analysis of A Multi-Purpose Refrigerator System” May 2018.
- [8] Methods of Refrigeration: Literature Review. 25th Jan 2017.
- [9] M.y.taib, a.a aziz and A.b.s. alias “Performance Analysis Of a domestic refrigerator” 26-27 may 2010.9) Poonam Dhankhar “A Study on Refrigeration” May 2014.
- [10] .R.S.khurmi and J.K.Gupta “Refrigeration and air conditioning”, S.Chand .
- [11] P.K.Nag “Heat and mass transfer” Third edition .
- [12] R.K.Rajput “Refrigeration and air conditioning ” third edition .:
- [13] <https://www.google.com/amp/s/www.cafcervices.com/blog/hvac/4-types-of-refrigeration-systems/amp>.
- [14] <https://www.publichealth.org/public-awareness/climate-change>.
- [15] <https://www.who.int/news-room/fact-sheets/detail/climate-change-heat-and-health>.