

# To Study the Effect Of Cowdung as a Commercial Plaster

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**Abstract** - . Around the world the population grows on the daily basis so we need house for living purpose. In order to built sustainable construction which is made from locally available material and to be economical too. So there is need to used long conventional material to embrace the aspect sustainable development. So we are using cow dung waste as a partial replacement of cement for plastering low cost houses.

**Key Words:** Cow dung. Plastering , sustainable construction ,partial replacement

## 1. INTRODUCTION

The increasing demand for low cost housing and high cost building material there is need to explore sustainable approaches to the needs of the building industry. Suggest that materials that use few natural resources, less energy and minimize carbon diOxide emission should be used to make environment-friendly concrete. Cow dung can be use for fule to generate electricity or to protect the wall. We can use cow dung in many things likes repairing the wall or coating any cemented things many ayurvedic homphethic and some of allophatic doctors use it for plastering bone fracture

### 1.1 Problem Statement

The cow dung used in the construction has the very low water resistance capacity due which cost of plastering is increasing . Due to its low resistivity to moisture it can not be used as a internal plastering in W.C. and Bathroom area resulting the capillary rise of water in the bathroom walls.

### 1.2 Objective

To evaluate the electricity energy saving from air condition and refrigerator  
To evaluate the effect of cowdung plaster on

temperature in the room under various climatic condition

To find the suitability of cowdung plaster



### 1.3 Scope of the work

Environmentally friendly mix blending the cow dung and the cement in order to improve on the traditional method of plastering low cost housing  
Need of other binding material, the tensile strength of the cement is relatively low  
Raditions can be decreased by using cow dung plaster  
Plastering efficiency can be increase

## 2. PREVIOUS RESEARCH WORK

1. Okello Thomas, prof oyawa walter, Dr.Ajwang Patrick – IOSR Journal of mechanical and civil engineering

This paper present the results on the study of use of cowdung and local brevery waste as a partial replacement of cement for plastering low cost house, results show that at 40% and 50% replacement level the compressive strength of mortar made from local brevery waste and cow dung increased as compare to the compressive strength of local brevery waste, cement, sand, mortar as a control which was above the minimum required straight

**2. Abdallah dadi Mahamat, oumar idriss Hamid, Malloum Soultan – Research Journal of Applied Sciences, Engineering and Technology :**

The excessive consumption of energy in a building sector weighs heavily on energy bill of the

developing countries. It is for this reason that several studies have been carried out international level, both at the level of building envelope and equipment in order to contribute to the control of the energy. In this study we are interested in studying effect of cow dung on the thermo physical characteristics of material based on clay

**3. P. Agamuthu, Y.S.Tan, S.H. Fauziah (2013):**

Have discussed that the cowdung can play an important role in treatment of soil polluted with lubricant oil and concluded that by bioremediation can play an important role in treating soil polluted with petroleum hydrocarbon.

**4 k. Prapagar , S.P. Indraratne and P. Premanandharjah (2012):**

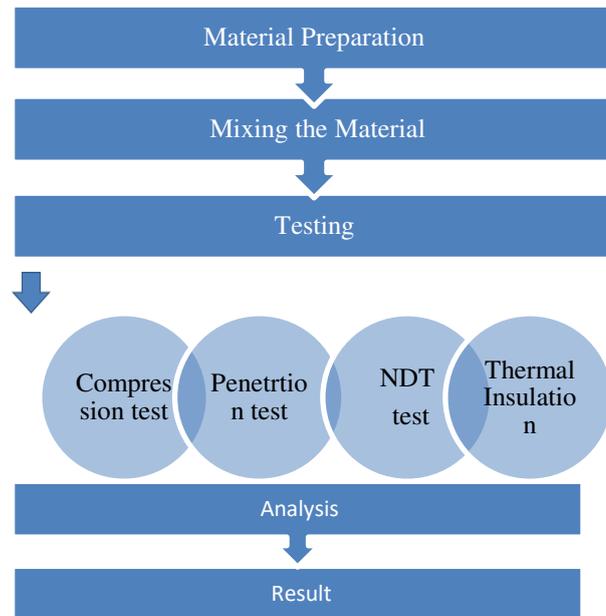
The study revealed that addition of gypsum and organic amendments (CD, PH) acted as ameliorant to saline-sodic soils. It also revealed that individual or combined effect of gypsum and simple leaching was more effective in changing EC and SAR. Gypsum application in combination with organic amendments improved the soil chemical properties by reducing the EC, SAR (Sodium Adsorption Ratio) and PH, than the applying gypsum alone.

**5. Uwumarongie-Ilori, E.G Aisueni N.O, Sulaiman-Ilobu, B.B, Ekhatof, F. Eneje, R.C. and Efetie-Osie, A.(2012):**

They have discussed that in cases of metal contamination, accumulation of heavy metal from regular application of inorganic fertilizer to soils cultivated with palm oil, cow dung can be used to immobilize the heavy metals in the contaminated soil.

**3. METHODOLOGY**

In this project following methods are used as,



**3.1 MATERIAL PROPERTIES AND TESTS:**

In our study we have to fully replacement of Gypsum, Lime, Cow Dung and for cement

**3.1.1. Material Properties:**

**3.1.2 Natural Lime powder:**

Natural Lime powder The natural lime powder is normally available in coal seam fires and volcanic ejecta. In ancient days, this material was used to make constructions. It has a good adhesive property. In Engineering sector it has been using mortar, concrete, cement. Natural lime can arrest the moisture content itself. So then it is reduce the curing age. In our project the lime powder contributes 50% of whole cement content

**1.1.3. Cow Dung**

Cow Dung is normally available in farm regions. The chemical properties of cow dung ash have rich in nitrogen, potassium and phosphorus. So in our project, we have to add only 20%. Because cowdung requires more water content. That's why we have to

reduce the percentage.

### 3.1.4 Gypsum

Gypsum is obtained from inorganic rocks that encompass ionic deposits of calcium sulphate. Gypsum plaster is used in interior plastering. In time past, plastering is done through the mixture of sand, cement and water. But now, plaster of Paris which is also known as gypsum plaster is gradually replacing this process of sand, cement and water. When compared with the best cement mixture, plaster of Paris seems to be the best because it requires no other finished product in mixing. In other words, it is a direct smearing on the brick or block and has a smooth surface when done properly

### 3.1.5 Red Soil

Red soil is a type of soil that develops in a warm, temperature moist climate under deciduous or mixed forest, having thin organic and organic mineral layers overlying a yellowish-brown leached layer resting on an illuvium red layer. Red soils are generally derived from crystalline rock. They are usually poor growing soils, low in nutrients and humus and difficult to cultivate because of its low water holding capacity.

### 3.2 Mixing the Material

Sr.no.	Type of material	Ratio-1 %	Ratio-2 %	Ratio-3 %
1	Cowdung	50	60	70
2	Gypsum	20	20	10
3	Lime	10	10	8
4	Soil	20	10	2

As per the different ratio we also test different water content ratio for mixing the material, but the properties of the material absorb more water hence our water content is 0.85 which gives us the best result.

## 4. Testing



Compression test



Penetration test



Plaster wall

## 5. Analysis

After performing all the tests we analyze that it is cheaper than the cement plaster. It is economical and environment friendly too and it gives minimum required strength of mortar for low cost houses.

## CONCLUSION

After Reviewing all the prior researches , we can conclude that the replacement of cement mortar by cowdung is effective and its compressive strength is increased as compare to cement mortar. Compressive strength required for mortar of low cost housing is minimum, and cowdung , gypsum and lime gives the mximum strength.

- The cowdung is only material can resist 50% diseases in our household
- Economical wise we can reduced the material cost
- Material can be easily available
- It is more ecofriendly
- It is the modern method to use our traditional material.

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