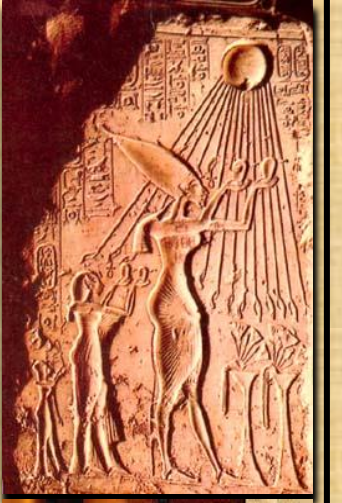


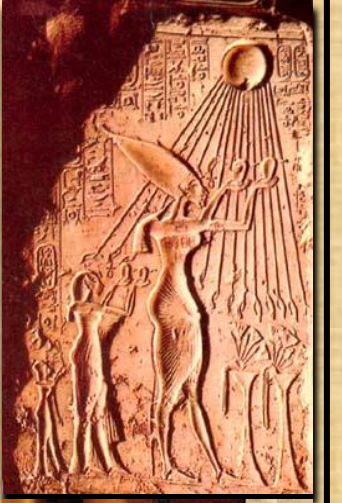
2ND TIME IMPLEMENTATION OF GBEP INDICATORS IN EGYPT

(RESULTS OF A FIELD STUDY)

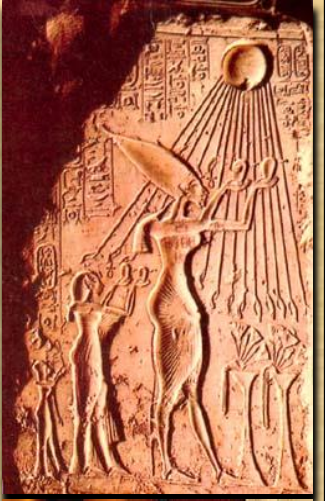
By

Ahmed Abd El-Ati Ahmed. Prof. Dr.

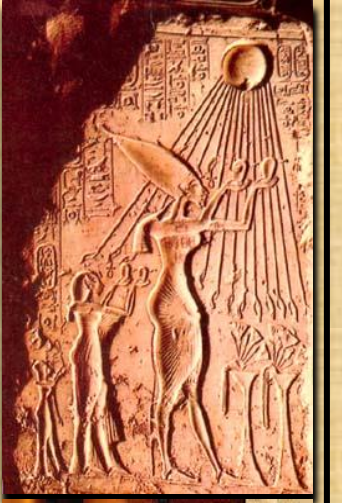
GBEP Focal Point of EGYPT

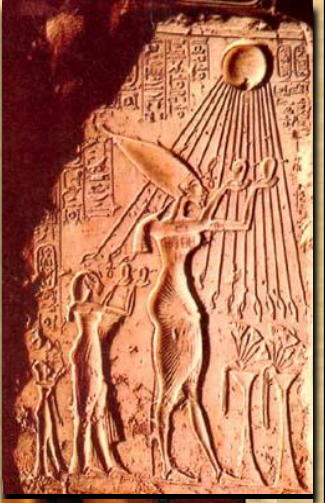


WHY IT WAS IMPORTANT TO IMPLEMENT GBEP INDICATORS FOR THE SECOND TIME IN EGYPT?

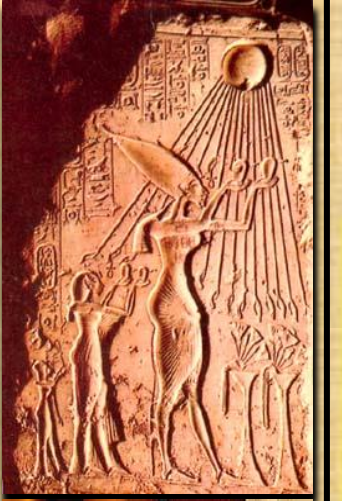


- The first implementation of GBEP indicators focused on one agro-ecological zone out of four that Egypt has. **(The second one : Nile Valley and Delta)**. In another word, it only dealt with 4% of the total land area, while the other 96% which is considered as hyper arid desert, and are totally exposed to Drought and desertification consequences , consequently poverty were left with no attention due to limitation of fund.
- The first implementation of GBEP indicators dealt only with thermal gas (pyrolysis), without any attention to biogas which is a very important bioenergy source in Egypt particularly in rural areas.
- **The Energy Crisis:** The limitation of fossil fuels natural resources and high price of LPG together increased the pressure on the socio-economic levels.
- **Water Crisis:** As Egypt has a very limited water resources never exceed than 58.3 million cubic meter annually. the water crises was magnified by the rapid population growth together with the pollution and it leaves no chance for the use of water as a source for generating electric power by any means possible.





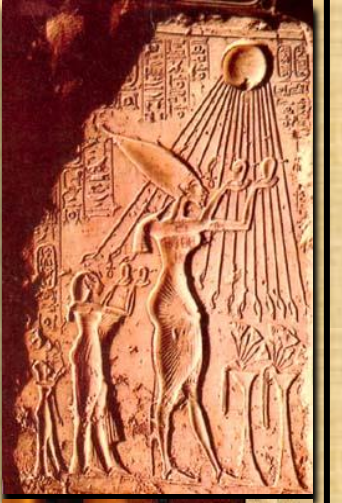
MEDITERRANEAN
Alexandria
Port Said
Gharbia
Menoufia
Behira
Ismailia
North Sinai
Giza
Cairo
Suez
Matruh
Helwan
Fayoum
South Sinai
Bani Suif
6th October
Menia
Asiut
Sohag
Qina
The first implementation
The second implementation

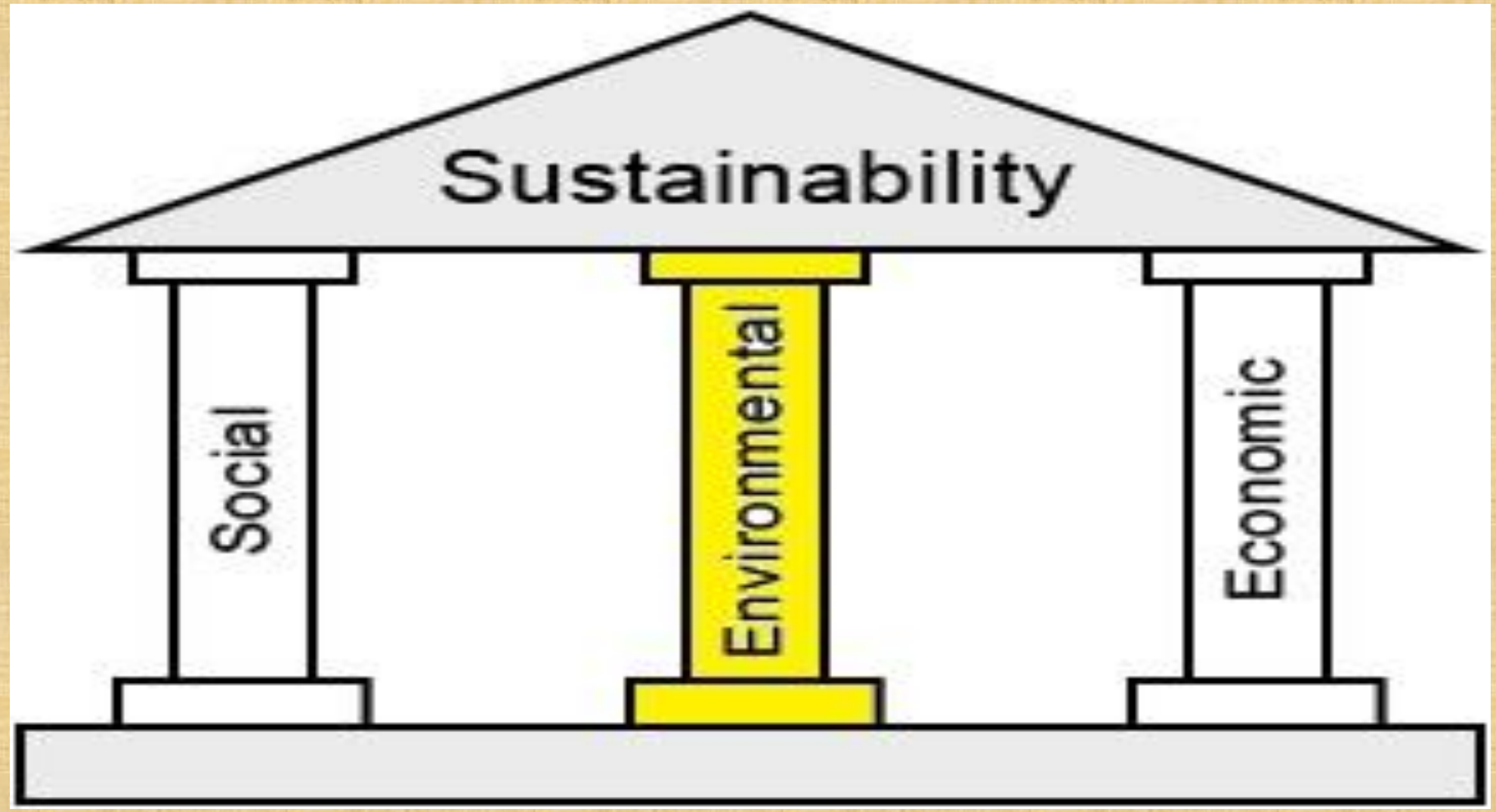


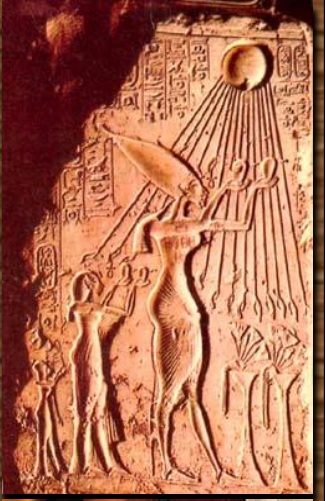
CASE STUDY APPROACH:

The following steps were followed:

1. The preliminary data of the project was used to have an overview of the early stage.
2. Review of literatures related to the project were collected.
3. Data was classified according to the GBEP three pillars.
4. In each pillar certain indicators were chosen according to its:
   a. Data availability.
   b. Relevance to both pilot study and the country.
5. Data gaps were overcame through focus group meetings.
6. Metadata were converted to Numeric data using a specific scale per each indicator.
7. The proper statistical analysis was used to define the importance of each indicator. (not relative, less relative, relative, very relative)



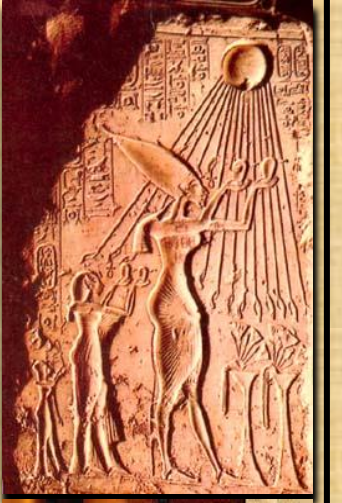

Sustainability
Social
Environmental
Economic

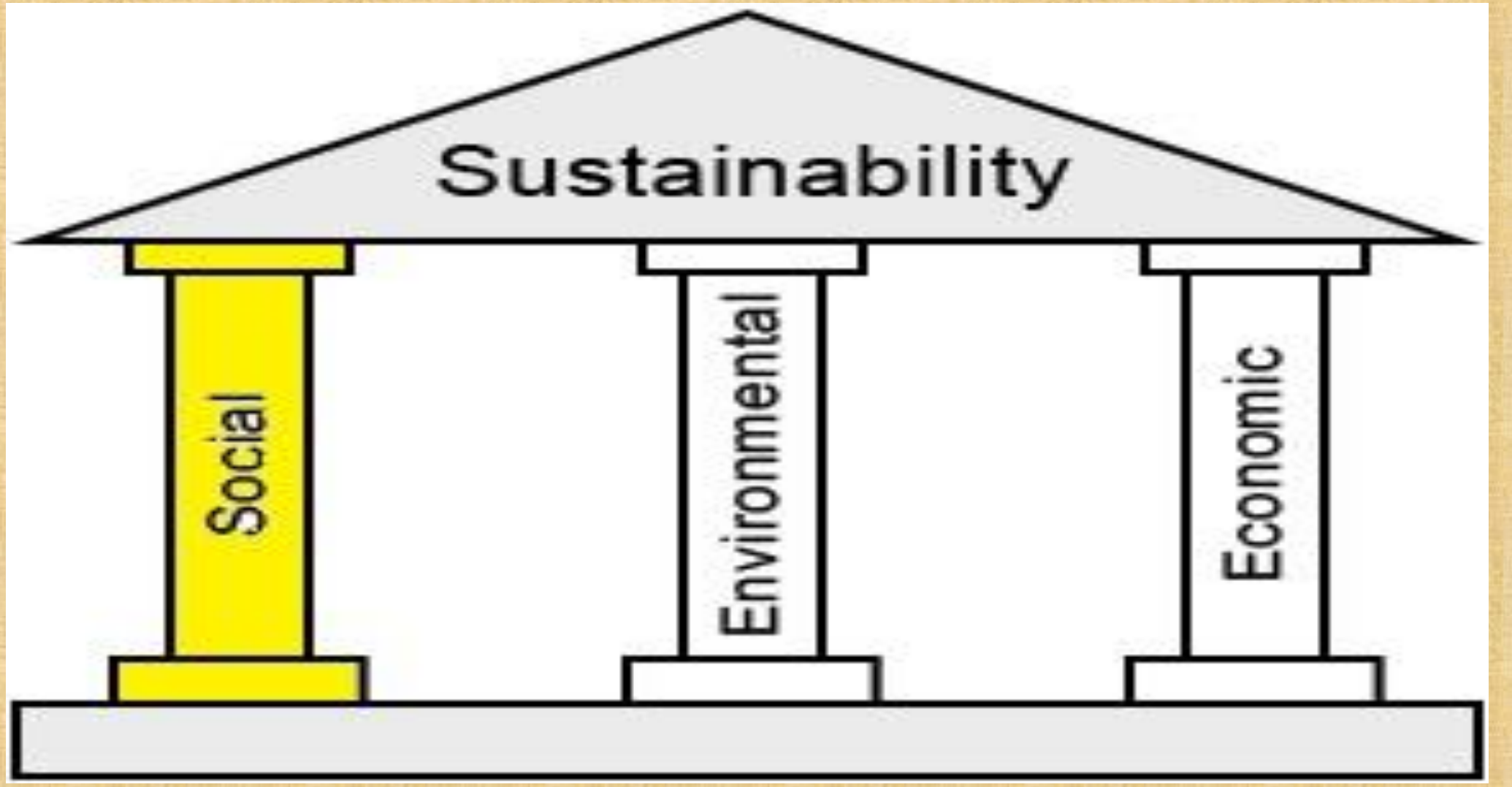


The Environmental Pillar

- Two indicators were found to be relevant to this case study, while the rest of indictors were found to be less relative, or data is not available:

1. Lifecycle GHG emissions: (% of CO_2 reduction after the project).(Very Relative). (over all reduction = 30 - 35%); Size $2m^3$ = 177.9 m^3 , $4m^3$ = 325.8 m^3 , $6m^3$ = 488.7 m^3
2. Soil Quality : (soil fertility as % of soluble nitrogen in the soil). (Very Relative) , results indicated that 15 m^3 of biogas compost is equal to 120 kg N/ Acre – overall soil fertility improvement = 12 % – 18.6% ; (Assiut = 17% , Fayoum= 14.5 % and South Sinai = 12%) , results also illustrated that biogas compost contribute to increased production of the subsequent crop by 11.5 % - 22.5% as overall mean.




Sustainability
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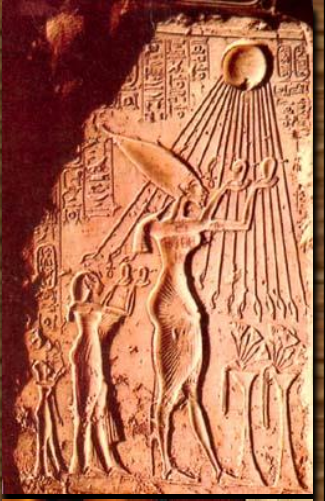
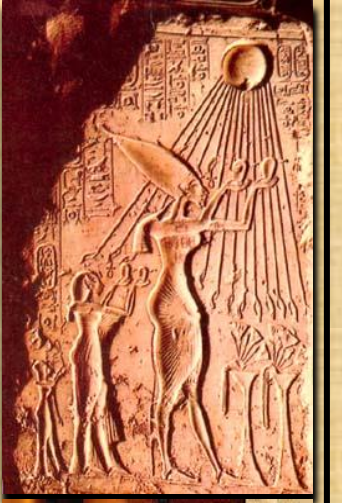
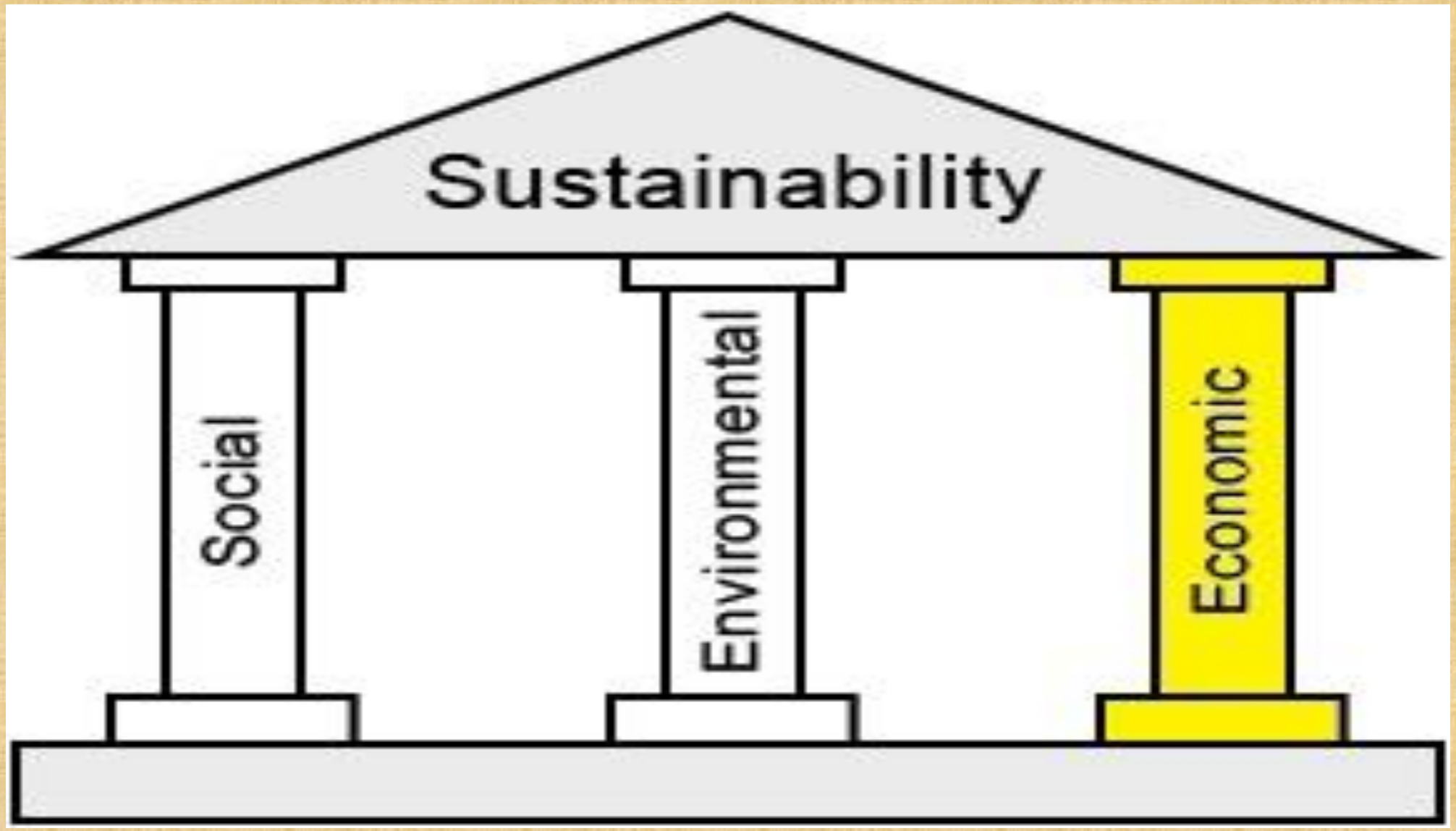


The Social Pillar

- Two indicators were found to be relevant to this case study (11 & 12) , while the rest of indictors were found to be less relative, or data is not available:
  1. Change in income: (relative); % of family income directed to in house energy consumption; (Size $2m^3$ = 50%, $4m^3$ = 100%, $6m^3$ = 120%) i.e. (1500 , 2860 or 4240 L.E annually).
  2. Jobs in the bioenergy sector: (relative); % of workers in the field of bioenergy in relation to labor force in the same age. (Size $2m^3 = 35 \times 10^{-4}$ %, $4m^3 = 45 \times 10^{-4}$ %, $6m^3 = 52 \times 10^{-4}$ %)




Sustainability
Social
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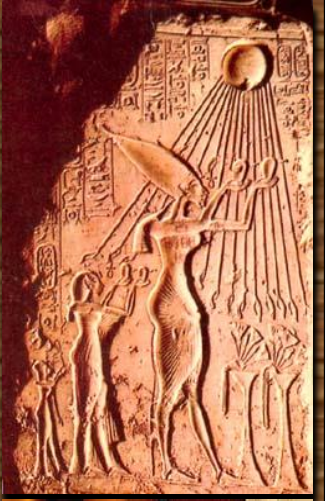
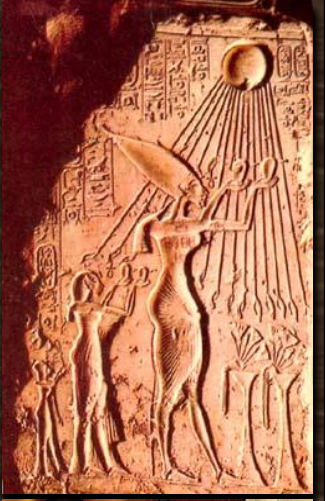
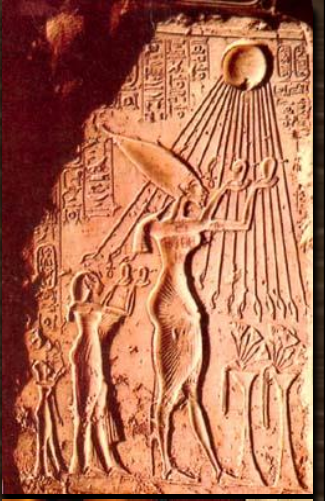


The Economic Pillar

- One indicator was found to be relevant to this case study (20) ,while the rest of indictors were found to be less relative, or data is not available:
  1. Change in consumption of fossil fuels and traditional use of bioenergy: (relative); families used the fossil fuels in order to compensate their monthly need for cooking, heating, animal husbandry lightening and heating, and irrigation. (Size $2m^3$ can fit 10% of monthly consumption , $4m^3$ = 35% of monthly consumption and $6m^3$ = 50% of monthly consumption.

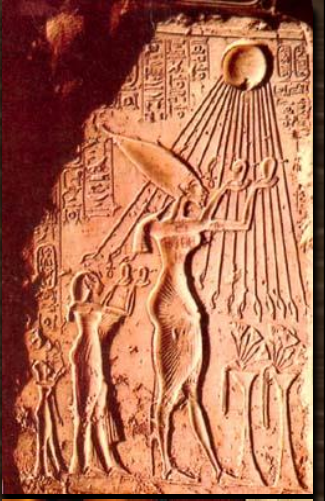


Economic feasibility

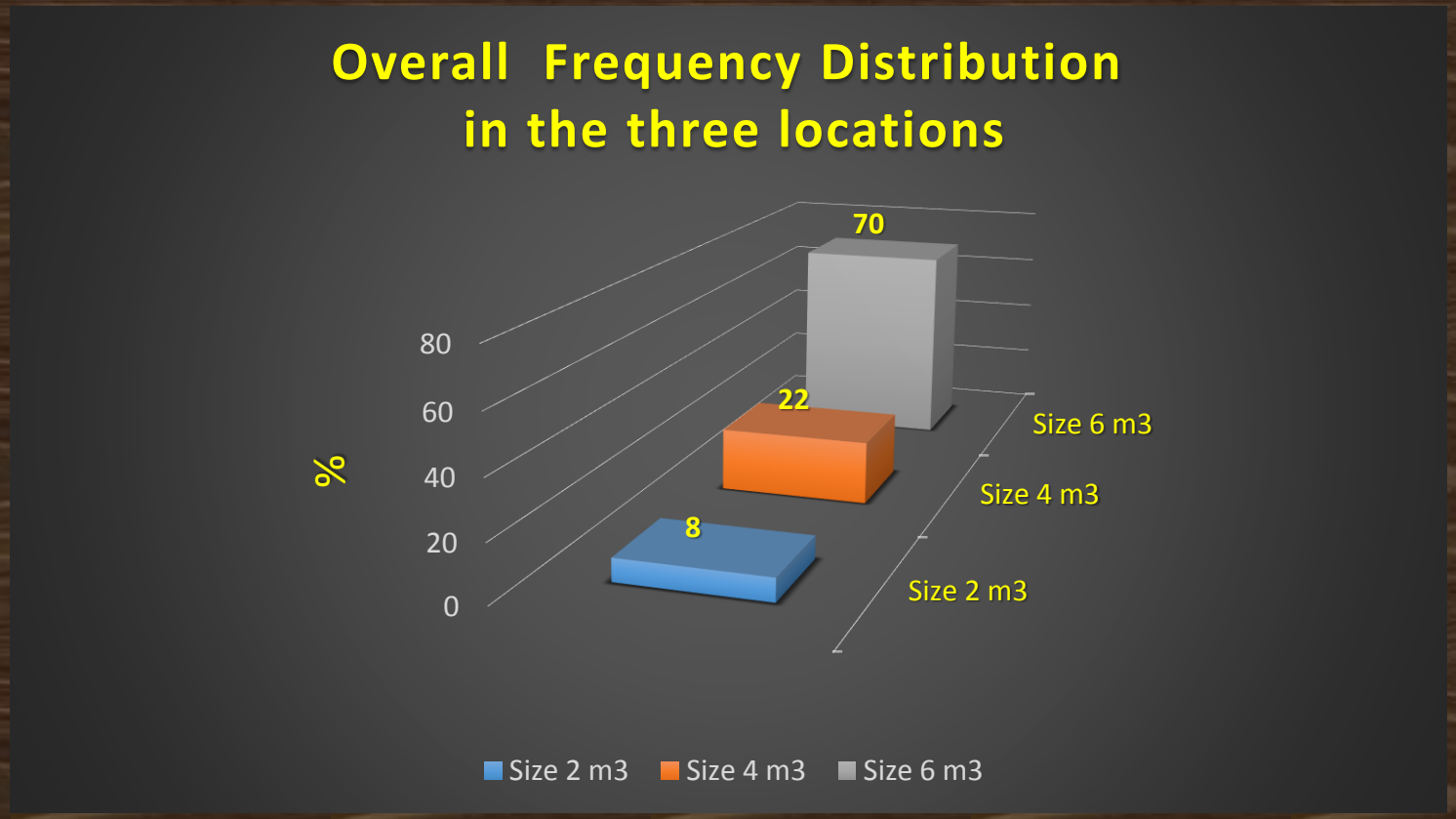


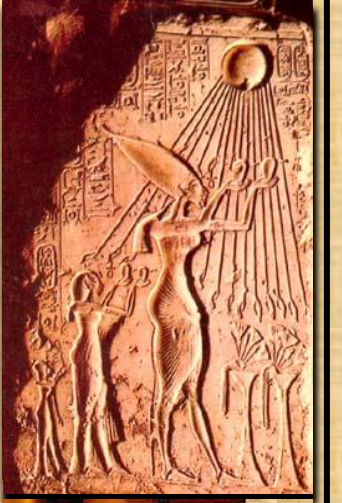
Economic feasibility

1. The average annual profit of the biogas unit were as follows; Size $2m^3$ = 1102 L.E., $4m^3$ = 2280 L.E. and $6m^3$ = 2280 L.E.
2. The Internal rate of return (IRR) were as follows; Size $2m^3$ = 16%, $4m^3$ = 15 % and $6m^3$ = 15%.
3. Payback period : 7 years almost.
4. Results illustrated that the size 6 m^3 was the most studied capacities that was profitable, productive and that was capable to tolerate the risks that may arise during the production process.



Economic feasibility





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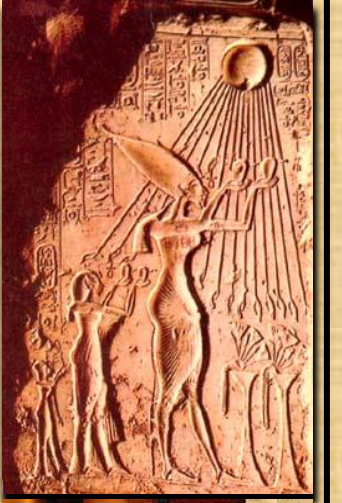
Eman A. El-Sayed , M. E. Ragab , A. A. Abdelati and Shimaa T. Fawzy. 2018. The economical and environmental revenues for the usage of biogas technology in the new Egyptian reclaimed areas. Arab Univ. J. Agric. Sci. Ain Shams Univ., 26 (2) 1- 12.



Thank You!!!