



The 10th International Scientific Conference

Under the Title

“Geophysical, Social, Human and Natural Challenges in a Changing Environment”

المؤتمر العلمي الدولي العاشر

تحت عنوان "التحديات الجيوفيزيائية والاجتماعية والانسانية والطبيعية في بيئة متغيرة"

25 - 26 يوليو - تموز 2019 - اسطنبول - تركيا

<http://kmshare.net/isac2019/>

Recycling the solid wastes.

MINISTRY OF EDUCATION & HIGHER EDUCATION.

DIRECTORATE OF EDUCATION.

TUBAS.

AL FARA SECONDARY SCHOOL.

(9th GRADE)

SUPERVISED

BY:

INAYAT RASHED SALAHAT.

state of PALESTINIAN

ABSTRACT: The content of this paper was the -Solid waste management, a school Recycling Program and the School: What You Can Do?:

By using the Methodology of Data analysis of the survey about recycling the solid wastes and calculate the Budget

The present work aims at:

Recycling Domestic Waste by using two methods:

1- At the school by making: (Recycling Program).

2- Domestic waste from the city will be used a plant for recycling solid waste,

(The plant will be controlled by the municipality of Nablus city).



Introduction

Recycling the solid wastes:

Recycling is the best method, that can be used to reduce the amount of solid wastes. It saves money, energy, and resources and reduces pollution. It also encourages the awareness and the responsibility of the individuals towards the wastes they produce. Recycling also reduces the demand on raw resources and energy.

Examples of the materials that can be recycled are: Paper, metals, glass, rubber, organic wastes and plastics. In Palestine, some of the organic wastes are reused as fertilizers. However, we should encourage recycling all the solid waste for better environment now and in the future.

As a third world, we want to reduce pollution by ourselves. This project can help reduce pollution and offer better salaries.

We choose domestic waste as it is from schools or from houses.

In our survey:

(From school by making : (A school Recycling Program).

(From houses and domestic waste from house which can be recycled by the municipality of Nablus city by making a plant for recycling.

So we can find ways to save our planet right.

Uses for plants:

** Reduces pollution.

** Helps the economy by selling the recycled products.

** Reduces cutting trees, because recycling paper means we don't have to cut as many trees to get paper, which also reduces the green house effect.

Introduction:

Recycling the solid wastes:

Recycling is the best method, that can be used to reduce the amount of solid wastes.

To recycle wastes from houses, the municipality of the city can make a plant for recycling, which is able to separate different types of waste from each other.

As for school, we can recycle the waste they produce by (A school Recycling Program).

So we can always find ways to save our planet if we just work harder.

December...2011:We made : (A school Recycling Program) According to the lesson at Tecnology for the 9 th.

We made a research about the recyclingof the solid waste.and we started to apply the work at school.

We made a design of a plant for : A Recycling Domestic Waste from the city will be used a plant for recycling solid waste, (The plant will be controlled by the municipality of Nablus.

1- Solid Waste Management:

Solid waste comprises of waste resulting from household, medical and industrial actives waste. In our survey, we chose domestic waste as it is from school or from house and domestic waste from house it will recycle by the municipality of Nablus city be making a plant for recycling, (our work as the following):



2- A school Recycling Program:

Directions: listed below are some ways to start recycling in your school. Try as many of these as you can.

Step1: Make everyone aware of what recycling is and why it's important!

- 1) Start a conservation newsletter (on recycled paper, of course).
- 2) Have students announce recycling tips weekly on the schools loudspeaker system.
- 3) Make a Recycling **Bulletin Board**.
- 4) Start a conservation club.

Step 2: Find out what needs to be done.

- 1) Locate ways to reduce waste.
- 2) Conduct a survey.
- 3) Have a contest to come up with creative recycling ideas.

Step 3: Get busy!

- 1) Start a recycling center in your school! (Use the money you make by selling cans, glass, and paper to the recycling center to pay for your conservation newsletter.)
- 2) Have the school start purchasing supplies made from recycled material.
- 3) Have the school cafeteria buy as much food in recyclable containers as possible.
- 4) Challenge other school to begin recycling.

3- School: What You Can Do?:

There are many ways you can help save our planet. There are some things you can do at school. First, find out some things, such as:

1. Look at paper and determine how much is used. Find out how much of the paper that has been thrown away is completely used up (is it written on, all over, and both sides).
2. See what other supplies are used in school. Determine if any of these are recyclable.
3. Find out what trash in the lunchroom can be recycled. See if there can be less waste in the school cafeteria.
4. Find out how much water and energy the school uses each year. Determine if some of it can be conserved.
5. Locate plants and trees on the school grounds. Decide if there are safe places for animals, birds, and insects to live.
6. Find out if the school purchases computer paper, paper towels, and toilet paper that are made from recycled paper.

See if you can find ways to save our planet right in your own classroom. A good place to start might be recycling.

METHODOLOGY

الاستبيان : هذا الاستبيان عن آراء الناس عن إعادة تدوير النفايات الصلبة .

معلومات عامة :

المهنة :

المنطقة السكنية :



عدد أفراد الأسرة :

أقل من 5 (ب-) من 5 إلى 10 (ج-) أكثر من 10

مستوى الدخل شهرياً لدى الأسرة :

أ- أقل من 200 دينار (ب-) من 200 إلى 500 دينار (ج-) أكثر من 500 دينار
الأسئلة :

أ) الوعي من مضار النفايات الصلبة :

- 1- في اعتقادك تحتوي النفايات الصلبة على أي من المواد التالية :
أ) جراثيم تسبب أمراض صحية (ب) مواد كيميائية ضارة (ج) ملوثات عامة (د) لا يوجد
- 2- برأيك ما هي مضار النفايات الصلبة :
أ) روائح كريهة (ب) مصدر للحشرات والقوارض (ج) تلويث البيئة (د) جميع ما ذكر
ب) معرفة طرق إعادة تدوير النفايات الصلبة .

هل تعلم عن طرق إعادة تدوير النفايات الصلبة حتى يتم استخدامها ثانية :

أ) لا (ب) نعم

4- إذا أجبت بنعم فما هي مصادر معلوماتك :

أ) الحديث بين الناس (ب) وسائل الإعلام {التلفزيون و الإذاعة}
ج) وسائل الإعلام {صحف، كتب، تقارير} (د) غير ذلك

ج) مجالات الاستخدام :

5- هل لديك معرفة عن المجالات التي يمكن استخدام النفايات الصلبة بعد معالجتها :

أ) نعم (ب) لا

- 6- لو توفر في منطقة سكنك مصنع لإعادة تدوير النفايات الصلبة ، أي المجالات يمكن أن تستخدم :
أ) سماد للمزروعات (ب) إعادة تصنيع الورق (ج) إعادة تصنيع البلاستيك
د) لا يمكن استخدامها حتى بعد معالجتها .

هل تؤيد أن تزيد فاتورة المياه لتشمل جزءاً من المصاريف :

أ) نعم (ب) لا

8- هل توافق أن يدفع المواطن تكلفة إعادة التدوير

أ) 10% (ب) 50% (ج) 70% (د) 100%

ذ) مستوى الخدمات :

9- هل يوجد شكوى من تلوث الهواء في منطقة سكنك :

أ) نعم (ب) لا

10- هل تتأكد عند شراء الأوراق و بأنها تم إعادة تدويرها :

أ) نعم (ب) لا

11- لو علمت بأنها تم إعادة تدويرها فهل تشتريها :

أ) نعم (ب) لا

1- Data analysis of the survey about Recycling the solid wastes:

To obtain the base line information for the survey, structured interview with key manager. The instrument that used to conduct this survey is questionnaire that divided into seven categories and these are as the following:

- 1- Awareness among people about the hazard of recycling the solid wastes .
- 2- Knowledge among people about the solid wastes and recycling method.
- 3- Some question deals with people's participation if they want financial support if there is any future plan concern solid wastes reuse.
- 4- Awareness among people about the governmental institution who deals with this topic and it service.
- 5- Knowledge about diseases that may have a relationship with using untreated. solid wastes

6- Final topics if they are watching film about reusing of solid wastes.

-About question that concern knowledge about recycling method we found that 22% of them they dose not know, and 78% they have an idea about this subject, in addition to source of information see fig(1).

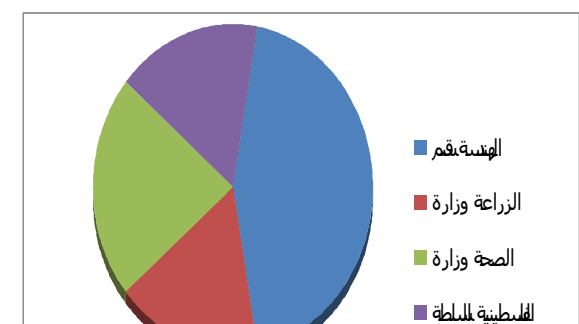
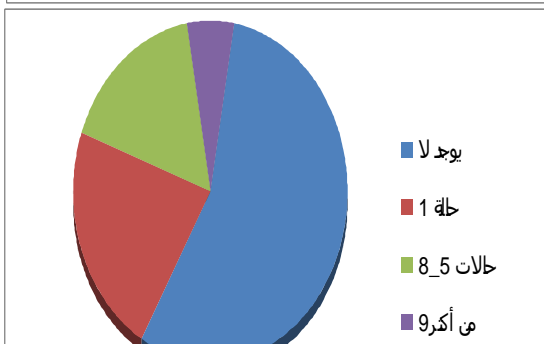
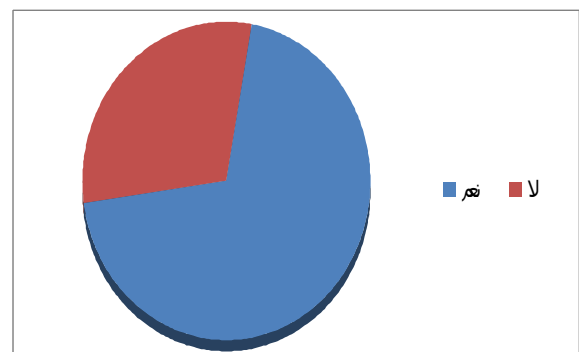
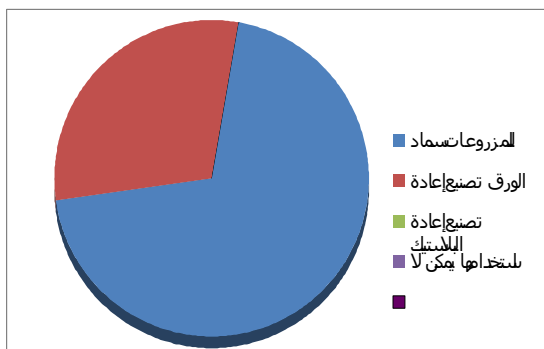
Representing the area that can be used the Recycling the solid wastes.

In question that deal with knowledge about the institution we see that- 14% of them agree that engineering department in municipal, 30% of them agree that Palestinian Health authority, 56% see that environmental authority responsibility. For more detail see fig(2).

-About the diseases among family especially diarrhea we found that 37% of people they don't have any history of occurrence of the disease, 63% of this target group have history of 1-4 times only, for more detail see fig(3).

About date that concern about sharing in cases that government want to make project for building institution for reusing the solid waste.

Finally the question that concern about watching films deals with reusing of wastewater we found that 30% they see films and the other 70% they don't.





حالات الأمراض وخاصة الربو.

المؤسسات المسنولة.

2- Budget :

The number of population in each city deals with the plant recycling as in table number (2-1) :

اسم المدينة	عدد السكان: Number of population.
Nablus	200.000
Jenin	170.000
Tulkarm	130.000
	المجموع = 500.000

Table number (2-1) : Number of population in each city.

--- Percept = 1 Kg / day.

Total number of populations = 500.000

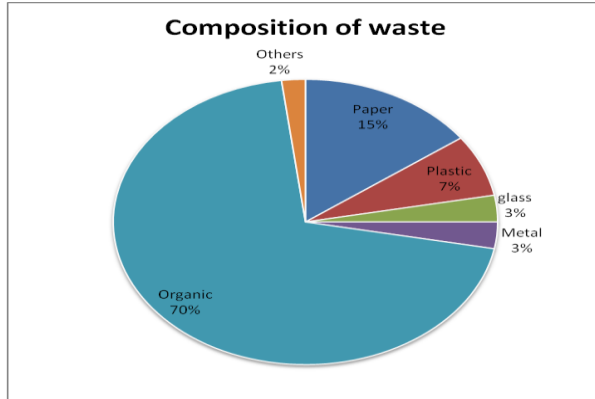
Total solid waste = $500.000 * 1 = 500.000$ Kg / day = 500 Ton / day.

-----Compositions of waste are shown in table no (2- 2) :

	content %	Moisture content %	Total weight . Ton
Paper	15%	6%	70.5
Plastic	7%	2%	34.3
Glass	3%	2%	14.7
Metal	3%	3%	14.55
Organic	70%	80%	70
Others	2%	93%	0.7
المجموع	100%		204.75

Table no (2- 2) : Compositions of waste.

For more details see fig (2-1).



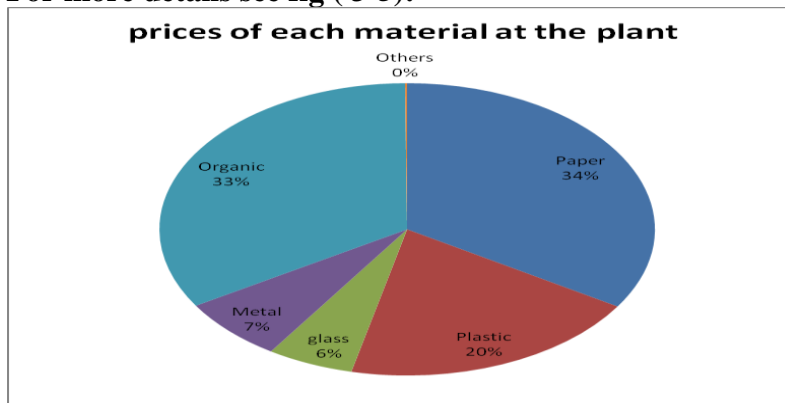
Fig(2- 1): Composition of solid waste.

Total prices of each material will be the product of the plant shown in table no (2 – 3):

المادة الناتجة بعد عملية التدوير في المصنع.	سعر الطن الواحد من المادة بالدولار.	السعر الكلي لجميع المادة المنتجة يوميا بالدولار.
Paper	50	$70.5 * 50 = 3525$
Plastic	60	$34.3 * 60 = 2058$
Glass	40	$14.7 * 40 = 588$
Metal	50	$14.55 * 50 = 727.5$
Organic	50	$70 * 50 = 3500$
Other	- 20	$0.7 * - 20 = - 14$
المجموع النهائي بالدولار يوميا.		10385 \$ / day.

Table (2- 3): prices of each material will be the product of the plant.

For more details see fig (3-5):



Fig(2-2): Price of each material from the plant.

-----Tipping Fee (operating cost)= 4 \$ for 1 Ton solid waste for one day.



$4 * 500 = 2000$ \$ for all waste for one day.

-----The plant is (semi automatic)so number of employments = 15 employment.

The salary of each employment = 60 \$ / day.

Total cost of all employments = $60 * 15 = 900$ \$ / day.

-----Maintenance = 10 % for one year. (For the plant).

Capital cost = 4 million \$ (for all the instrument in the plant).

So maintenance = $10 \% * 4 * 106 = 40000$ \$ for one year.

Maintenance for one day = $40000 / 365 = 1100$ \$ / day .

-----Depreciation = 8 % for one year.

Total depreciation for one day = $(8 \% * 4 * 106) / 356 = 900$ \$ / day.

-----Interest rate = 5 % (for one year).

Total Interest rate for one day = $(5 \% * 4 * 106) / 356 = 550$ \$ / day.

.....
Total cost = cost of employments+ Maintenance + Depreciation + Interest rate

Total cost = $900 + 1100 + 900 + 550 = 3450$ \$ / day.

Total

-----Profit for one day for this plant = $(10385 + 2000) - 3450 = 8935$ \$ / day.

-----Profit for one year for this plant = $8935 * 365 = 3004175$ \$.

(So this plant will make the municipality very rich) .

ملاحظة (ما يدفع للبلدية من فاتورة المياه والكهرباء تكون حصة للبلدية سنويا) = 2000 \$.

The plant will be north of Nablus city.(for more details see fig(2-3):

3- Conclusions & Recommendations:

Conclusions:

We can found ways to save our planet right in so we make a school recycling program and we want the municipality to depend our project for recycling solid waste.

Recommendations:

** The collection system needs to be upgraded to eliminate random dumping of waste.

** A modern sanitary landfill should be constructed for Nablus district, taking into account environmental impacts on the site and leachate monitoring and control.

**** A composting program should be established to use the large percentage of organic matter.

**** Waste materials should be reused and recycled to the largest degree possible.



- **** Medical waste and industrial hazardous waste should be properly controlled to protect human health and environment.
- **** Public awareness about proper solid waste should be increased.
- **** Additional research will be needed to study solid waste management such as recycling, fermentation and waste to energy.

References

- 1- Al-Joulani, N., Institutional implementation of the National Environmental Action Plan, 1999. (Unpublished report).
- 2- Amra, Z. The development of Palestinian Environment Law and Legal Advocacy, A paper presented in the Palestine-Israel Journal, volume 5, No.1, 1998.
- 3- ARU, The Status of the Environment in the West Bank, October 1997.
- 4- Aronson, G., Report on Israel Settlement in the Occupied Territories, Vol.8, No.3, May-June, 1998.
- 5- Coad, A. An Evaluation of the current status of solid waste management in Palestine, GTZ, August 1997.
- 6- Ecopace, An updated inventory of new development projects, Jerusalem, 1997.
- 7- El-Musa S. Negotiating Water: Israel and Palestinians Institute for Palestine Studies, Washington, D.C. (1996).
- 8- Farinelli, X.H. Freshwater conflicts in the Jordan River Basin, Green Cross International, June 1997.
- 9- Hosh, L., Preliminary Evaluation of the Potential of Aquaculture in Palestine, Applied Research Institute-Jerusalem, June 1997.
- 10- Isaac, J. and Hosh, L. Roots of the Water Conflict in the middle East, presented in the Middle East Water Crisis, Creative Perspectives and Solutions Conference, Held by the University of Waterloo, 7-9 May 1992.
- 12- MOPIC, Regional Plan for the West Bank Governorates, Water and Wastewater Existing Situation, December 1998.
- 13- MOPIC, The Palestinian Development Plan 1999-2003, June 1999. (In Arabic).
- 14- MEnA, F. de Zanger, Palestinian Environmental ACTION Plan, July, 1999.
- 15- PCBS (Palestinian central Bureau of Statistics), Preliminary Results for the Census of Population and Establishments, Palestinian National Authority, Ramallah, 1997.
- 16- PEC (Palestinian Energy Center), The Present Status of Electricity Services in the West Bank, Jerusalem, 1995.
- 17- Peleg, Mordachi, et al. Ozone Levels in Central Israel, Israel Journal of Chemistry, vol 34, pgs 375-386, Jerusalem, 1994.
- 18- PEnA, National Biodiversity Strategy and Action Plan For Palestine, Hebron Palestine, 1999.
- 19- PEPA (Palestinian Environmental Protection Authority) and Euroconsult/ Iwaco, Gaza Environmental Profile: Part One, Inventory of resources, Arnhem / Rotterdam, The Netherlands, June, 1994, pp. 11-53.



20- PEPA (Palestinian Environmental Protection Authority) and Euroconsult/ Iwaco, Gaza Environmental Profile: Part two, Interactions between Man and Environment, Arnhem / Rotterdam, The Netherlands, January, 1995.