STUDY REPORT   UNDERSTAND THE EFFECTIVENESS ON THIN POLYTHENE REGULATION
NO 1466/5 - 10.10.2006

WASTE MANAGEMENT UNIT
ENVIRONMENTAL POLLUTION CONTROAL DIVISION
CENTRAL ENVIRONMENTAL AUTHORITY
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- Polythene Product Sellers
- Alternative Products Sellers
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Abstract

Uncontrolled and needless use of polythene is still creating adverse environmental impacts. The Ministry of Environment of Sri Lanka and the Central Environmental Authority [CEA] took the initiative with wide stakeholder participation to introduce regulatory measures to minimize negative impacts on the environment and human health due to thin polythene. Through Gazette numbered 1466/5 and dated 10 October 2006, manufacture of polythene product of 20 μm or below in thickness is prohibited from 1 January 2007. This has been done by virtue of the powers vested to the honourable Minister of Environment as per the National Environment Act no 47 of 1980.

The Waste Management Unit of the CEA has conducted a survey to investigate the effectiveness of the Regulation in order to propose necessary amendment to the existing Regulation. Data collection was done according to a questionnaire through Divisional Environmental Officers of the CEA. Data was collected from all the districts except those in the Northern Province.

According to the data obtained from Sri Lanka Customs the quantity of plastic and polythene imported has increased by 3 % from 2005 to 2006. It has only increased by 1% from 2006 to 2007. This speaks in favour of the Regulation. However, the survey results have indicated that the usage of raw materials have increased after the Regulation. The population increases and increased consumption and related production could be one reason. Another reason may be due to increased thickness of polythene products requiring more raw materials. Whole sales of polythene products have decreased considerably in the country after implementation of the Regulation.

According to the survey burning of Polythene is the most popular disposed method in our country. The second is polythene disposal with other types of waste. Monaragala, Badulla, Polonnaruwa, Hambanthota & Trincomalee are poor in recycling while Colombo, Kandy, Gampaha, Matara & Galle are considerably good in recycling than other districts. Based on statistical analysis of survey results it can be said that the new Regulation is effective. There is a clear change in usage of polythene after the implementation of Regulation. Public awareness of this Regulation should be increased as well as kept continuously to get a more effective out-put from the Regulation. Polythene usage and sales have increased in the western province which is inevitable since the population of this province increases rapidly here in comparison to other provinces and migrant population is also high in this province. In addition to this the deficiency of alternatives for lunch sheets in Colombo may also be a reason for the non-reduction in the use of polythene, but polythene consumption and sales have comparatively reduced in other districts after new Regulation. Hence, this Regulation has achieved its objective to a considerable extent.

Acceptable recommendations for this current issue can be listed as follows. The number of recycling centres should be increased to promote recycling in addition to changing peoples attitudes towards the 3R concepts. Good coordination among government bodies is essential for the success of this regulation. Alternative products should also be promoted in Sri Lanka. Government intervention is essential to promote alternative producers and sellers and Public awareness of this Regulation should be increased as well as kept continuously to get an effective out put from the Regulation.

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Chapter 01 -Introduction

Polythene is one of the simplest and most inexpensive polymers. A polymer is a long repeating chain of molecules, formed through the linkage of many molecules called monomers. Although generally organic (Based on carbon chains), there are also many inorganic polymers. Polythene and other plastic products are made of Poly Vinyl Chloride (PVC), Polypropylene and Polystyrene etc. and are not easily degradable.

In Sri Lanka Polythene / plastics are widely available in the markets since about 1980. Because of its low price and convenience, people got used to utilize polythene bags particularly since it is give free of charge at most retail outlets free of charge with even small purchases. These days' polythene bags and sheets are being widely used for various purposes. The most problematic type of polythene products is polythene shopping bags commonly known as "Sili-Sili bags". Grocery bags/curry bags and lunch sheets are of different thickness. Most of them were below 15μm.in thickness.

Sri Lanka does not have an established post consumer management system including a properly established recycling mechanism for the polythene, particularly the Sili Sili bags. The general practice is that the used bags are thrown away in to the environment without any consideration. Very few scavengers are involved in collecting this Sili- Sili bags for recycling.

The use of thin polythene bags (Sili Sili bags) and lunch sheets are more problematic due to their lightweight and low thickness and difficulty to reuse and recycle. They cause blocking of drainage canals and there by are main culprits in floods in urban areas even after a light rainfall.

Despite many public awareness campaigns uncontrolled and needless use of polythene is still continuing creating adverse environmental impacts in our country. The authorities concerned to discourage and reduce the use and unsound disposal of polythene had introduced number of measures recently. This study intends to investigate the effectiveness of one such measure "the banning of manufacture and sale of polythene of thickness less than 20 microns.

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1.1. Environmental and Health Implications of Polythene Use

Plastic and Polythene are used widely and littered freely. Such practices have lead to give rise to numerous and massive environmental impacts. These include:

- Disturb the cleanliness and the aesthetics of the environment.
- Because of their lightweight, they can easily blow off and disperse uncontrollably through out the environment.
- Block the drainage channels and provide breeding grounds for disease bearing vectors.
- Eventually create flash floods in urban areas.
- Polythene hinders seed germination and their growth
- Animals often eat garbage with polythene leading consequently to ill health and even death.
- Create significant negative health effects

Polythene, Grocery bags and lunch sheets are almost freely available for use and dispose in haphazard manner with other solid wastes. Therefore collection, separation and cleaning of polythene are extremely difficult tasks, which hinder recycling. It is very difficult to reuse and recycle polythene of low thickness.

1.2. Legal Provision

The Ministry of Environment of Sri Lanka and the Central Environmental Authority took the initiative with wide stakeholder participation to introduce regulatory measures to minimize negative impacts on environment and human health due to thin polythene. Through Gazette numbered 1466/5 and dated 10 October 2006, manufacture of polythene product of 20 microns or below in thickness is prohibited with effect from 1 January 2006. This has been done by virtue of the powers vested to the honorable Minister of Environment as per the National Environment Act no 47 of 1980.

The said Gazette Notification is:

Order under section 23W

"By virtue of the powers vested in me by the Section 23W of the National Environmental Act, No 47 of 1980 as amended from time to time, I, Maithripala Sirisena, Minister of Environment do by this order, with effect from 1st of January 2007, prohibit

I. The Manufacture of Polythene or any product of twenty (20) microns or below in thickness for on country use; and

II. The sale or use of polythene product which is twenty (20) microns or below in thickness.

For the purpose of this Order "polythene" means any solid products, bags, material or contrivances manufactured using all form of polyethylene, poly vinyl chloride, poly propylene, polystyrene, polyethylene terapthalate or any other similar raw material used for this purpose of carrying, packaging, wrapping or packing".

1.3 Main Objective of the Regulation

Main objective of this regulation is to minimize environmental and health impacts due to thin Polythene films and products of plastics. It is also intended to enhance reusability, recyclability of polythene films and products by increasing the thickness of the polythene as well as to motivate entrepreneurs to produce alternatives and public to use environmentally friendly alternatives to minimize environmental and health effects.

In addition to the above regulation the Government has taken a number of policy decisions to address the issue of environment friendly management of plastics and polythene to reduce the environmental impacts. Some of them are as follows.

1. Prohibit the use of specified polythene products i.e. "sili sili bags, etc in places such as forest areas visited by the general public, government buildings, schools, religious places, play grounds etc...

2. Prohibition of the use of polythene for out door decorations in all functions organized by the government institutions and the general public to enforce through National Environmental Act (NEA).

3. Introduce a 0.5% of CESS on Import of all plastic raw materials and finish goods under HS 39 to enable such funds to be used for awareness building, education, incentives for recycling projects and pilot projects implemented through local authorities and for the grants to the plastic industry to assist in the production of biodegradable plastics and environmentally safe alternatives.

4. Impose a ban on the manufacture of non-biodegradable polythene films having an average thickness of less than 20 microns for a single ply.

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Chapter 02 - Survey

Survey of new trends and changes of polythene products after implementation the new thin polythene Regulation No 1466/5, 2006.10.10

2.1 Objective of the Study

The Gazette numbered 1466/5 has prohibited the manufacturing of polythene or any polythene product of 20 microns or below in thickness for in country use and the sales or use of polythene or any polythene product of 20 microns or below in thickness with effect from 1st January 2007.

After implementation of aforesaid regulation, the CEA has decided to conduct a survey to understand the effectiveness of the said Regulation in order to make a recommendation to Hon. Minister of Environment and Natural Resources on amendments needed to the existing Regulation and to propose the improvements on its implementation.

2.2 Survey Methodology

The Waste Management Unit of the Central Environmental Authority conducts this project.

Data collection was done according to a questionnaire through Divisional Environmental Officers attached to the regional offices of the Central Environmental Authority. Data collectors have personally met the information providers, so response rate was 100%.

Data was collected from all the districts except those in the Northern Province.

2.3 Main Activities of the Survey

01. Study new trends and changes of usage, production and sales of thin polythene in year 2007. Collect the data from the custom about the quantity of imported raw materials.

02. Collect data from polythene recycling and production industries. Main objective is to study about quantity changes of raw materials purchased for manufacturing of polythene and of polythene/ plastics which is used for recycling.(Annex 01)

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03. Obtain data from wholesale dealers about sales of polythene products. (Annex 02)

04. Survey on retail Shops. Study sales changes of polythene bags (Sili-Sili/Lunch sheets/Grocery bags) and to understand the behaviors of the customers through sales. (Annex 03)

05. To get views of householders about the regulation and to investigate the types of alternatives generally used by householders. (Annex 04)

06. Study new trends and changes of alternative products and sales.
(Annex 05)

07. Analysis of data about usage of polythene in Sri Lanka after implementation of the regulation on thin polythene.

No of Samples

Annex 01 - 05
Annex 02 - 14
Annex 03 - 16
Annex 04 - 17
Annex 05 - 10

2.4 Method of Technical Analysis

Step 1: - Screened the collected data.

Note:

Most of the respondents have given the quantity by number of polythene bags. But occasionally by kilograms, yards, sheets etc.

Step 2: - Grouped the data into 5 main categories

Main categories are Manufacturers, Wholesalers, retail shops, households & alternative producers. For further analysis those categories were divided into sub categories by districts.

Step 3: - Took the difference in sale of polythene bags between prior to implementation of the regulation and after implementation and used that difference as the variable of analysis.

Step 4: - In the event of getting more than 30 observations, those data categories were tested for normality using Anderson-Darling test of Minitab 14 software.

H_0: Dataset is normal

H_1: Dataset is not Normal

P values > 0.05 do not reject H_0

Main idea was to use a parametric test (One sample t-test for the differences) which is more accurate than non-parametric tests. However, if the numbers of observations are approximately below 30 it is not prudent to use parametric tests.

Step 5: - Since the differences have come from two related populations (i.e. from same person after & before the regulation) and the unit of measurement (i.e. the differences) in ratio scale the non-parametric test – "Wilcoxon Signed Rank test" was used (to apply Wilcoxon Signed Rank test the data should come from two related populations & they should be at least in interval scale) and analyzed all the categories & sub categories appropriately.

For manufacturers, sellers & households,

It's observed that after the implementation of new thin polythene Regulation the quantity of manufactured polythene product, selling, as well as consumption is less than the past years. So the H_1 hypothesis had to be considered on that situation. **Means median of the difference of quantity of polythene consumption after Regulation & before Regulation become negative value (less than 0).** This hypothesis only appeared that the Regulation is

effective. In contrast if the Regulation is not effective, **median of the difference of quantity of polythene consumption after Regulation & before Regulation become greater than or equal to zero.** This statement is express by the H_0 hypothesis.

H_0: Median of the differences ≥ 0

H_1: Median of the differences < 0

P value > 0.05 do not reject H_0

For all the instances null hypothesis was rejected under 95% confidence levels. According to the Wilcoxon Signed Rank test P value obtained for the each data set, which is less than 0.05. **So reject H_0 and automatically accept H_1. The new polythene Regulation seems to be effective on the basis of the results of non-parametric test.**

For Alternative producers,

We assume that after the new Regulation quantity of alternative product manufacturing, as well as alternative product consumption is increased than that of before. So the H_1 hypothesis built up upon that assumption. **Means median of the difference of quantity of alternative product manufacturing after Regulation & before Regulation become positive value (greater than 0).** This hypothesis only appeared that the Regulation is effective. In contrast if the Regulation is not effective, **median of the difference of quantity of alternative product manufacturing after Regulation & before Regulation become less than or equal to zero.** This statement is express by the H_0 hypothesis.

H_0: Median of the differences ≤ 0

H_1: Median of the differences > 0
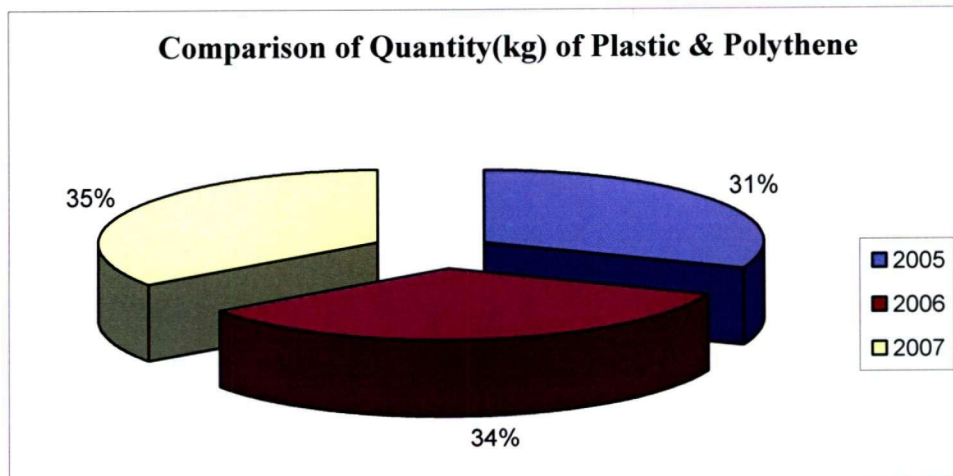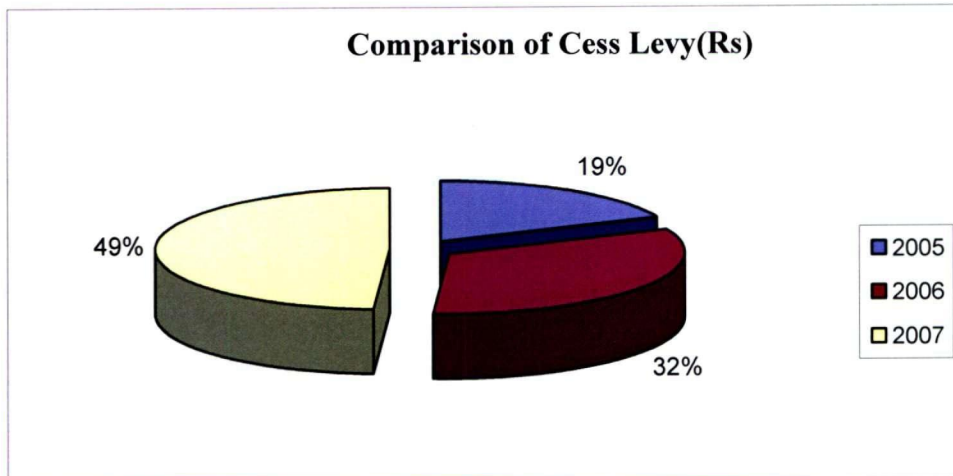
P values > 0.05 do not reject H_0

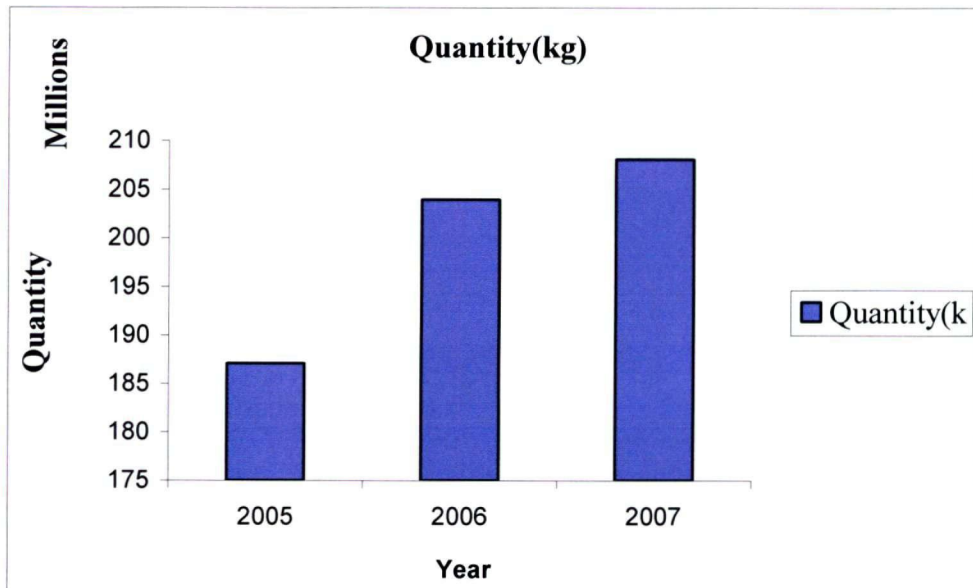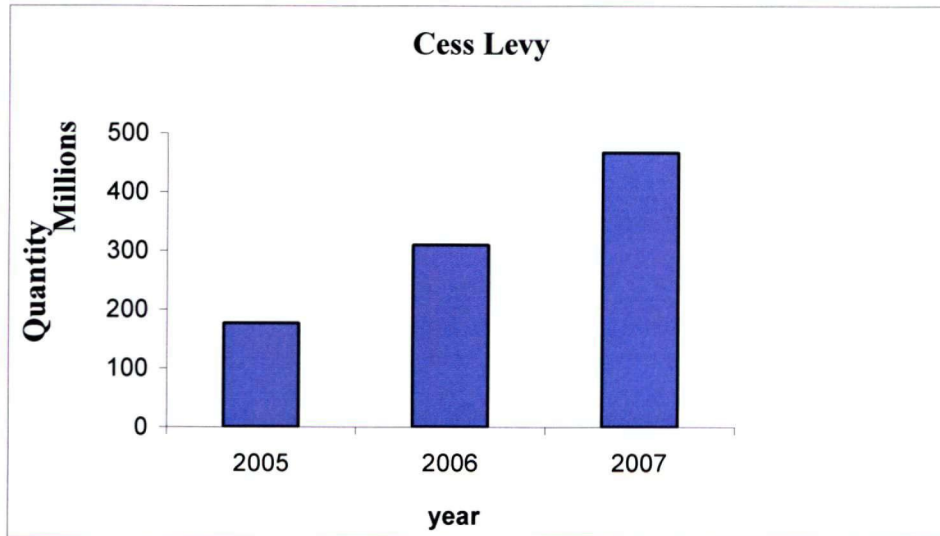For all the instances null hypothesis was rejected under 95% confidence levels.
According to the Wilcoxon Signed Rank test P value obtained for the each data set, which is less than 0.05. **So reject H_0 and automatically accept H_1. The new polythene Regulation seems to be effective on the basis of the results of non-parametric test.**
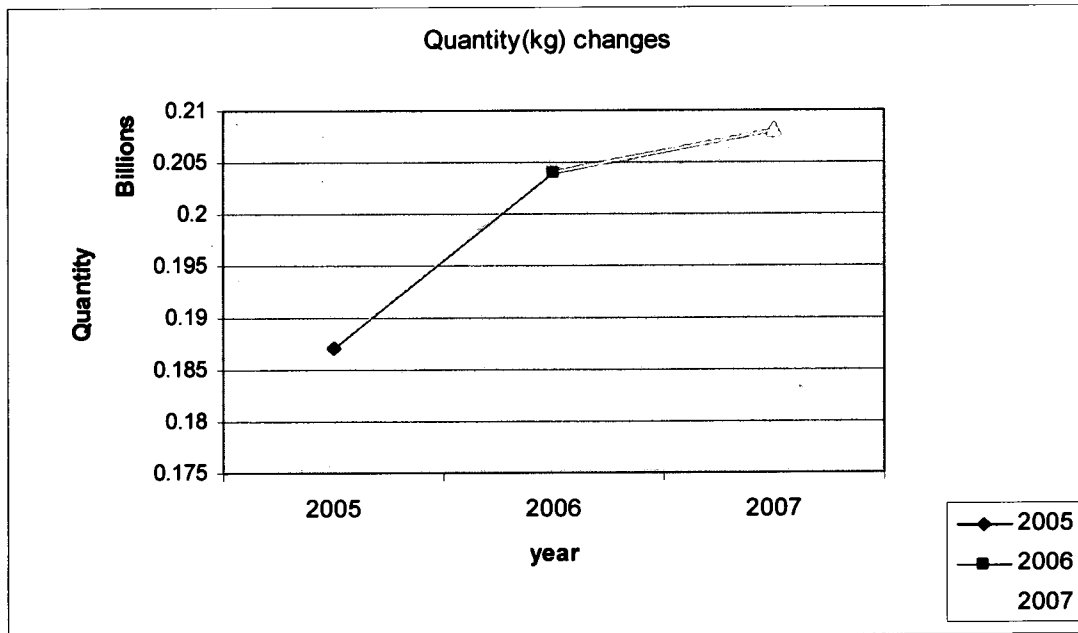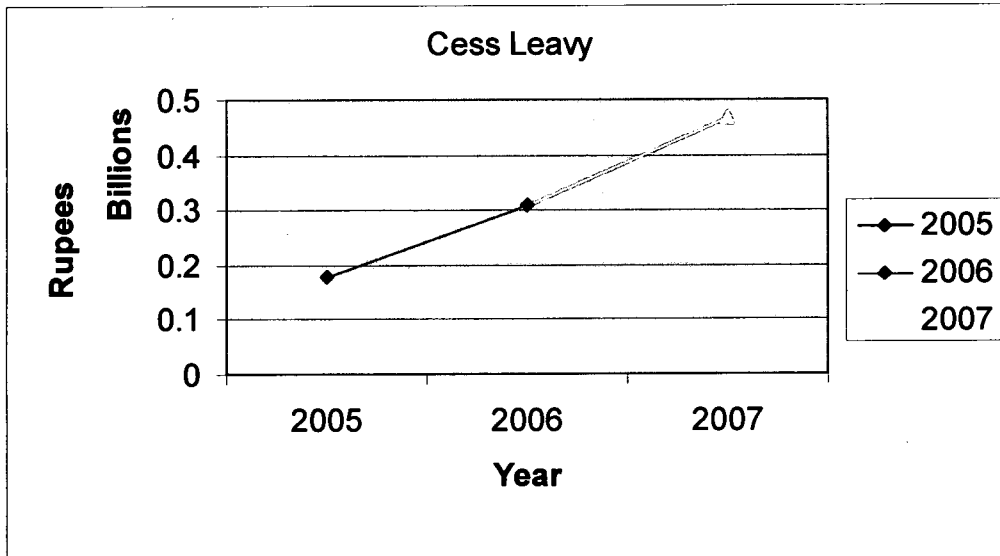
Chapter 03 - Results

3.1 Study on new trends and changes of importing raw materials of polythene

Income from Cess Levy

Comparison of Cess Levy(Rs)

19%

49%

32%

Legend:
- 2005
- 2006
- 2007

Comparison of Quantity(kg) of Plastic & Polythene

31%

35%

34%

Legend:
- 2005
- 2006
- 2007

Cess Levy

Quantity(kg)

9

Cess Leavy

Rupees (Billions)

y-axis: 0, 0.1, 0.2, 0.3, 0.4, 0.5

x-axis (Year): 2005, 2006, 2007

Legend: 2005, 2006, 2007

Quantity(kg) changes

Quantity (Billions)

y-axis: 0.175, 0.18, 0.185, 0.19, 0.195, 0.2, 0.205, 0.21

x-axis (year): 2005, 2006, 2007

Legend: 2005, 2006, 2007

Cess levy of 2007 is greater than that of 2006. Cess levy increased by 13% from 2005 to 2006. But it was increased by 17% from 2006 to 2007. Hence it appears that annually there is an increase in the Cess levy.

According to the custom data the quantity of plastic and polythene imported has increased by 3 % from 2005 to 2006. It has only increased by 1% from 2006 to 2007. So we can conclude that the importing of quantity of plastic and polythene has gone down after the Regulation.

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3.2 **Study on new trends and changes of the polythene related manufacturing industries after the implementation on new thin polythene Regulation No 1466/5, 2006.10.10**

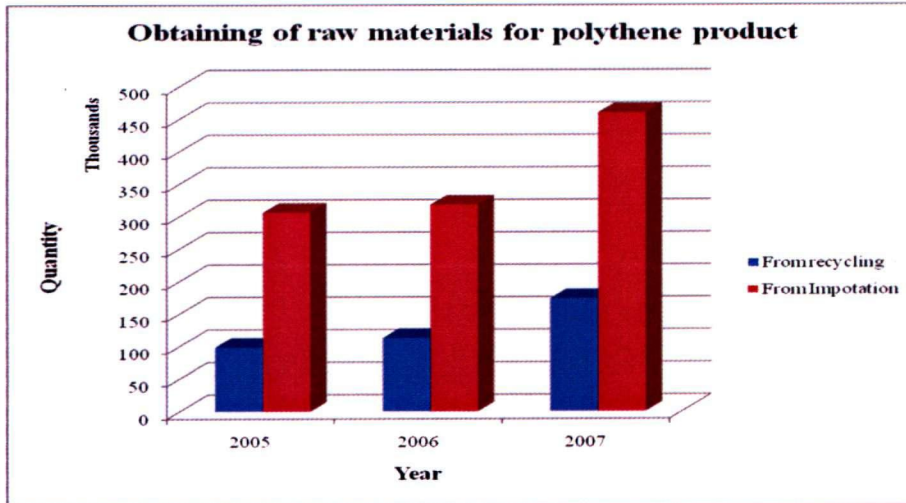**Usage of Raw materials in manufacturing industries**
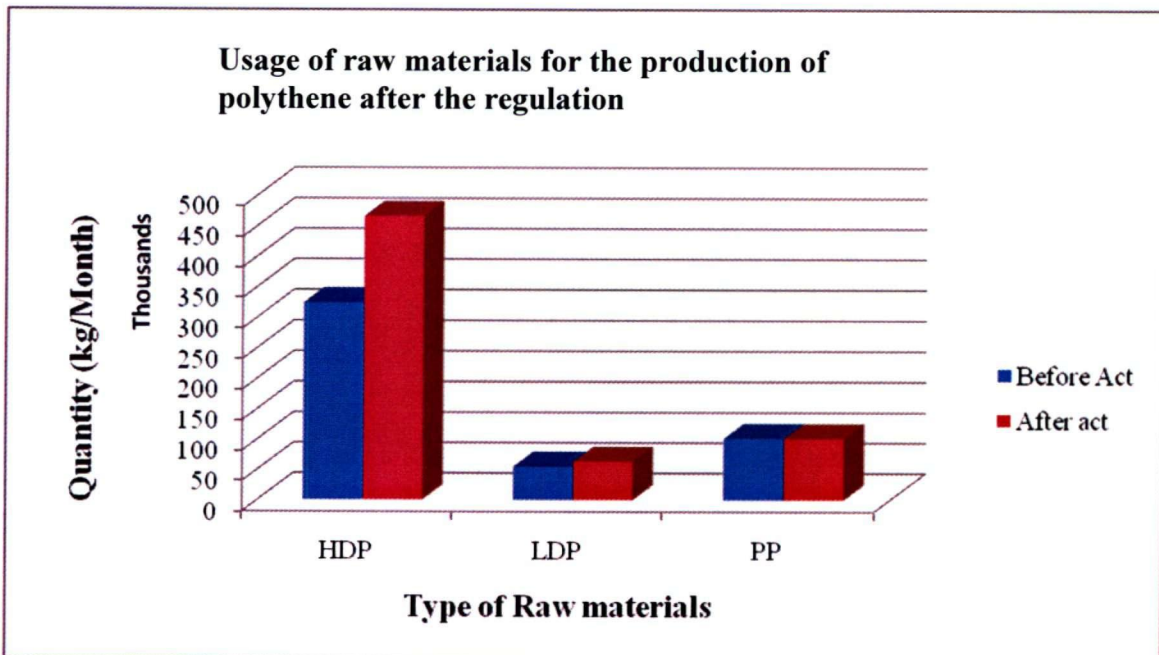
HDP- High Density Polythene

LDP- Low Density Polythene

PP – Poly Propylene

Details of the total raw materials

The graph of the obtaining of raw materials can explain as follows,

Obtaining raw materials from recycling has been increasing for past few years. In year 2005 raw materials from recycling is 98600 kg according to the responders. In year 2006 it increases by 14200 kg than figure of 2005.

After two years from 2005, in year 2007 the amount of recycling increases by 74500 kg than figure of 2005.

The reason for increase recycling in year 2007 was enhance thickness of the polythene products after the new polythene regulation. Because of that mechanically recycling is easy after the increasing the thickness.

Importing verging material for polythene production is another way to obtain raw materials. According to the graph, amount of importation in year 2005 is 316500 kg. In year 2006 this importation amount increases 12000 kg than figure of 2005. In year 2007 this importation amount increases 138800 kg than figure of 2005. Due to increase the thickness of polythene, importation of virgin materials in year 2007 is increase. So need more raw materials to produce polythene than before the regulation.

Conclusion

Since the sample size is less than 30 a statistical analysis cannot be done for this category. According to the results it seems that usage of raw materials have increased after the Regulation. The population increases and increased consumption and related production could be one reason. Another reason may be due to increased thickness of polythene products since increased thickness of polythene products has necessitated industries to use more raw materials for their production. Because of that after implementing the regulation usage of raw materials for each production has increased. But increasing frequency is declined.

Industries are obtaining raw materials primarily from importing and there is an increase in raw materials imported even after the Regulation. However, there is also an increase in the amount of raw materials obtained from recycling which might be due to the increased thickness allowing recycling.

3.3 Study on new trends and changes of wholesale dealers of polythene products after the implementation on new thin polythene Regulation No 1466/5, 2006.10.10

Changes of Polythene Products in Whole Sale Dealers After Implementing the New Polythene Regulation
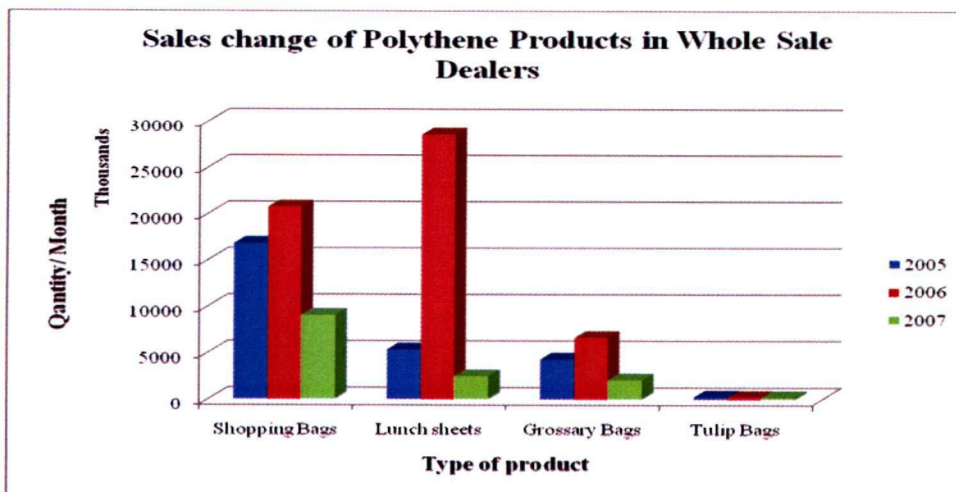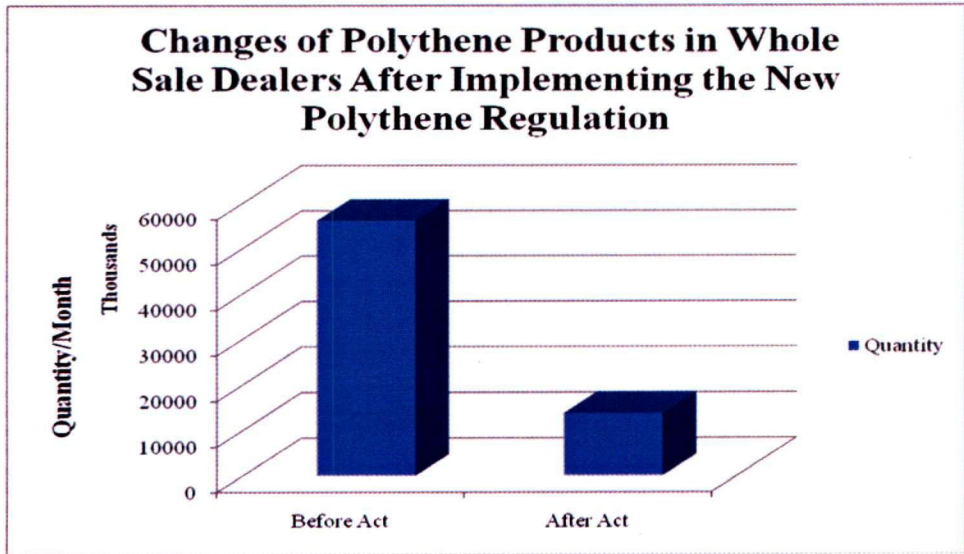
H_0 = median of the Difference ≥ 0

H_1 = median of the Difference < 0

Wilcoxon Signed Rank Test: Difference of Quantity of polythene in whole sales

Test of median = 0.000000 versus median < 0.000000

	N	N for Test	Wilcoxon Statistic	P	Estimated Median
Difference	*10*	*10*	*5.0*	*0.012*	*-226370*

P value (0.012) < 0.05, so reject H_0 under 5% significance level.

So the Regulation seems to be effective for Whole sales of the country.

It's observed that after the implementation of new thin polythene Regulation the quantity of wholesales of polythene products is less than the past years. So the H_1 hypothesis had to be considered on that situation. Means median of the difference of quantity of polythene sales after Regulation & before Regulation become negative value (less than 0). In this test accept H_1 hypothesis. This hypothesis only appeared that the Regulation is effective.

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Conclusion

According to the statistical analysis the "Regulation: seems to be effective. Whole sales of polythene products have decreased considerably in the country after implementation of the Regulation. There is a big difference in whole sales before and after the Regulation. Usage of lunch sheets has reduced from 78% to 7%. Shopping Bags have reduced from 45% to 9% and Grocery Bags, from 51% to 16%. There is no change in the whole sales of tulip Bags after the Regulation.

3.4 Study on new sales changes of the polythene related small-scale sellers after implementation on new thin polythene Regulation No 1466/5,2006.10.10

H_0= median of the Difference ≥ 0
H_1= median of the Difference<0

Wilcoxon Signed Rank Test: Difference

Test of median = 0.000000 versus median < 0.000000

	N	N for Test	Wilcoxon Statistic	P	Estimated Median
Difference	16	16	5.0	0.001	-126091

P value (0.001) < 0.05, so reject H_0 under 5% significance level.
So the Regulation seems to be effective for sales shops of the country.

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It's observed that after the implementation of new thin polythene Regulation the quantity of sales of polythene products is less than the past years. So the H_1 hypothesis had to be considered on that situation. **Means median of the difference of quantity of polythene sales after Regulation & before Regulation become negative value (less than 0).** In this test also accept H_1 hypothesis. This hypothesis only appeared that the Regulation is effective.

Conclusion

After implementing the act sales of polythene products have decreased considerably in all districts except in Colombo and Kalutara. Hence the "Polythene Regulation" appears to be effective for sales. According to that people in the country tend to reuse of polythene and also use alternatives.

Buying tendency of polythene product of consumers significantly reduce specially due to, increasing the thickness of polythene and value addition of polythene products.

3.5 Study on public awareness and consumption changes of polythene in the household level after implementation on new thin polythene Regulation No 1466/5,2006.10.10

Wilcoxon Signed Rank Test: Difference for polythene consumption in Sri Lanka

Test of median = 0.000000 versus median < 0.000000

	N for Wilcoxon			Estimated
	N	Test	Statistic	P	Median
Difference	15	15	34.0	0.074	-2693

H_0= *median of the Difference* ≥ 0

H_1= *median of the Difference<0*

Since P value (0.074) <0.05 under 5% significance. We reject H_0. So the Regulation seems to be effective for whole country.

It's observed that after the implementation of new thin polythene Regulation the quantity of consumption of polythene products is less than the past years. So the H_1 hypothesis had to be considered on that situation. **Means median of the difference of quantity of**

polythene consumption after Regulation & before Regulation become negative value (less than 0). In this test accept H_1 hypothesis. This hypothesis only appeared that the Regulation is effective.

Conclusion

Numbers of observations are more than thirty could be carryout normality tests. Most of the districts had more than thirty observations. According to the P value of the test, there is an ability to find out weather the data set is normal or not normal. Most of the data sets are not normal according to the normality test except Puttalam. Wilcoxon –Signed Rank test is the statistical analytical tool to find the effectiveness of the Regulation for each district as well as for the whole country. Actually according to the test new polythene Regulation seems to be effective for each district, which is data available as well as for whole country.

Illustrations of Method of Waste Disposal –

Open Burning of waste is a primary air pollution issue in Sri Lanka. According to the survey burning of Polythene is the most popular solid waste management method in our country. Open burning is highest in the Rathnapura district where 76% of the respondents burn their waste. There is no evidence of recycling in the survey data in Rathnapura. Hence, we recommend that more awareness programs are required in Rathnapura for recycling. The CEA can directly intervene to promote recycling of polythene at household level as well as industrial level. Range of percentage of burning is 35%-76%.

The second most popular method is polythene disposal with other types of waste. Large numbers of urban population dispose their waste to tractors of their municipal councils. Range of percentage of this second popular method is 20% -45%.

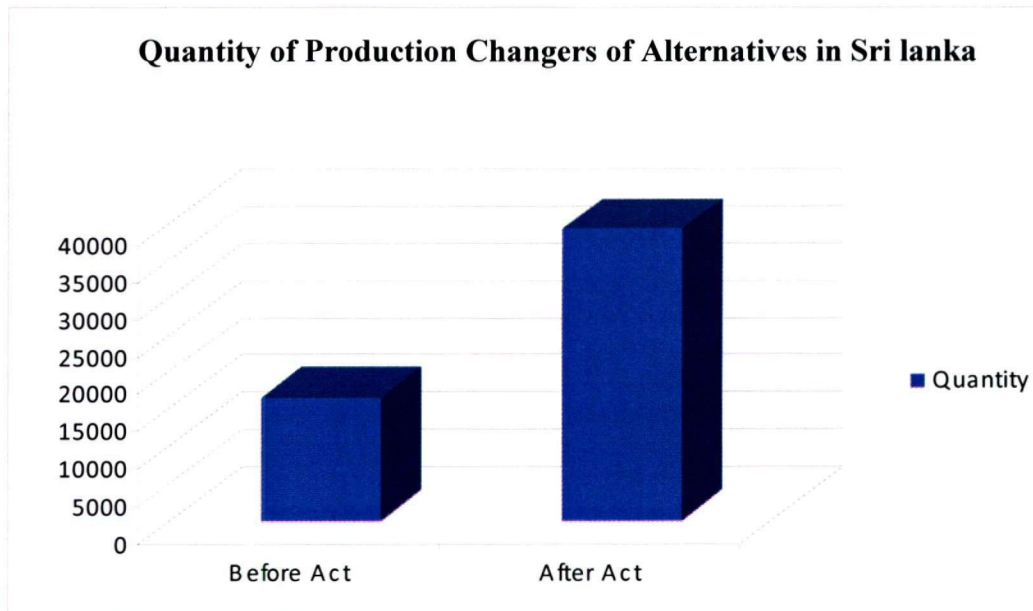Another method for disposal of polythene is burying waste. Polythene is disposed by burying in the range of about 3%-15%. In the charts it is represented as disposal "under soil". Though burying of polythene does not cause immediate pollution problems like burning it is also a considerable issue since polythene does not degrade easily and persist for a long time as such. Kegalle takes the highest position in burring polythene.

Monaragala, Badulla, Polonnaruwa, Hambanthota & Trincomalee are poor in recycling while Kandy, Gampaha, Matara & Galle are considerably good in recycling than other districts.

Public Awareness about the Regulation

Awareness about the regulation

- Not Responded
- Aware about the Law
- Do not know about the Law

3% 5%
92%
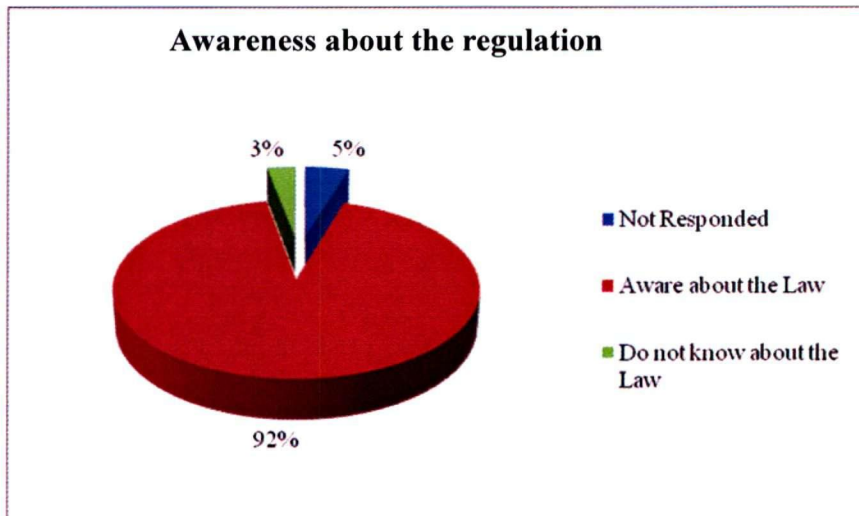
3.6 Study on new trends and changes of the alternative producers and sales.

Quantity of Production Changers of Alternatives in Sri lanka

- Quantity

Before Act   After Act

Statistical Test for the Alternative Production

Wilcoxon Signed Rank Test: Difference of Production.

	N	for Test	Wilcoxon Statistic	P	Estimated Median
Difference	8	8	36.0	0.007	468.3

H_0= *median of the Difference* ≤ 0

H_1= *median of the Difference* >0

Since P value (0.007) < 0.05 under 5% significance. So reject H_0. So the Regulation seems to be effective for all Districts data which available.

We assume that after the new Regulation quantity of alternative product manufacturing, as well as alternative product consumption is increased than that of before. So the H_1 hypothesis built up upon that assumption. **Means median of the difference of quantity of alternative product manufacturing after Regulation & before Regulation become positive value (greater than 0).** In this test accept H_1 hypothesis. This hypothesis only appeared that the Regulation is effective.

Chapter 4: Discussion

According to the results of the entire survey specially based on the statistical analysis the new Act appears to be effective. There is clear change of polythene usage after the Regulation.

The data analysis is however done under several limitations. Data is not enough and is not distributed representatively in each District. Most have not responded to the survey. Clear and standard data could have been obtained if a standard form was used for the questionnaire and if a standard method was used for collection of data.

In Annex 01, data was not enough to carry out a statistical analysis. If there is more data from polythene manufacturing industries the survey could have been more effective and conclusive. We have only used raw material usage of polythene production to compare the effectiveness of the Regulation.

There are no data obtained from some Districts. Some districts and cities are highly effective in managing their solid waste like Nuwara Eliya. But data is not available from such districts. This Analysis was carried out for the whole country. Therefore this data deficiency will affect the whole survey and unequal sample size also creates problems.

For this survey more data from manufacturing centers and sales centers are more reliable as well as at household level.

According to this survey most popular disposal method is burning. Recycling is not a popular method among the householders. It is very effective to promote the recycling among householders. In addition use of alternative products should also be promoted in Sri Lanka. Government intervention is essential to promote alternative producers and sellers.

Public awareness of this Regulation should be increased as well as kept continuously to get an effective out put from the Regulation.

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Polythene usage and Sales will increase in the western province because population of this province increases rapidly here in comparison to other provinces and migrant population is also high in this province. In addition to this the deficiency of alternatives for lunch sheets in Colombo may also be a reason for the non-reduction in the use of polythene. But polythene consumption and sales has comparatively reduced in other districts after new Regulation. Hence, this Regulation has achieved its objective to a considerable extent. This can be kept continuously. However, there should be increased awareness programs covering the whole country.

Chapter 5: Recommendation

➢ The necessary infrastructure facilities for plastic recycling industries should be developed and the early facilities need to be strengthened / improved. Specially, proper plastic waste collection network, storage facility, crushing, bailing and transportation.

➢ Attitudes & knowledge of general public on post consumer plastic waste management should be developed towards the 3R concepts.

➢ The awareness programs for school children's and other interested groups about the polythene regulation should be strengthen in order to avoid the usages of thin polythene.

➢ The detections should be further intensified island band on a well planned scheduled in collaboration with the regional office network.

➢ Existing circulars which were published by the various government ministries in fast few years with directions of the polythene usages in their controlled areas should be re implement. Ex - wild life parks, sensitive areas, archeological sites etc

➢ The necessary national level programs should be launch to promote the usages of alternatives among the general public and simultaneously necessary assistance should be give to the manufacturers of the alternative products to cope with the demand

➢ It is advisable to see the possibilities of delegation of powers on implementing the regulation to the reliable government institutions i.e: Ministers of Defense, Public Security Law & Order and Health and Nutrition in order to increase the effectiveness of the implementation of this regulation.

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➢ Make compulsory the manufactures to label their product with necessary details such as Thickness, EPL number , Address , Product name in order to ensure the users receive the quality product in par with the existing regulation

➢ All polythene manufacturing industries must necessarily obtain the approval from CEA [i.e. EPL] and also from the relevant authorities in the area.

➢ Recommended to conduct a comprehensive study, after the two year implementation period of the regulation.

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