

## LIGHT KIDS, WASHABLE DIAPERS IN THE MUNICIPALITY CRÈCHE AND INCENTIVES FOR FAMILIES - ITALY



### 1. Summary

Country/Geographical Area	ITALY Municipality of Colorno (Parma)
Level implementation	Local
Scale	Roll out
Waste fraction / Specific Waste Type	Bulky & other / diapers
Target Audience	280 participating families, 1 local crèche
Objective	Incentive for washable diapers (and biodegradable diapers) for families with children and local municipal crèche.
Initiator/coordinator	Department of Environment and Public Services, Municipality of Colorno
Other key actors involved	3 participating stores, local crèche, crèche staff, crèche cooperatives, diaper manufacturers, laundry services, media
Duration	2008 - ongoing
Number in Prewaste Mapping	47
Name of partners having contributed to factsheet & date	Marche Region/SVIM
Contacts	<a href="http://www.comune.colorno.pr.it">www.comune.colorno.pr.it</a> ; <a href="http://www.nonsolociripa.it">www.nonsolociripa.it</a>

## 2. Context

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Colorno is a municipality in the Province of Parma in the Emilia-Romagna Italian region, located about 90 km northwest of Bologna and about 15 km north of Parma. As of 30/4/2010, it had a population of 9,020 and an area of 48.7 km<sup>2</sup>.

The disposable diapers represent about 4-5% of total waste produced in Italy in recent years. In the Municipality of Colorno, disposable diapers represent about 23% of the household solid waste. The disposable diapers are mostly made of plastic, which implies that their environmental impact has to be considered both during production and disposal.



In Italy it is estimated that about 6 million diapers are used per day, compared with a daily per capita use of about 5-6 diapers. This aggregate data helps us to understand how important it is for the waste management system considering this product.

In particular the problem associated with the use of disposable diapers is closely related to the impossibility of disposing the waste in one of the waste supply chain management and due to the presence of multiple materials, in particular plastic, disposable diapers are destined to the landfill or to the incinerator. Studies also show that it takes about 500 years to decompose.

## 3. Strategy

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### *Objectives*

The project "Light Kids" is targeting families with children and to the municipal crèche. The goal, in the medium term, was to achieve a drastic reduction in the number of disposable diapers purchased, encouraging the use of durable diapers. The project required the use of washable diapers or biodegradable diapers from the company that deals with the management of municipal crèche. A three-year contribution for each child of the families involved was provided in order to cover, partially, the supported costs for the families within the first three years of the child's life.

### *Preconditions*

In 2008, the Administration of Colorno Municipality decided to launch a strong initiative to promote and disseminate the use of washable diapers. In recent years, the Municipality of Colorno launched several initiatives aimed to reduce waste: ranging from recycling of durable goods to sales of detergents in bulk, from separate collection of household waste to the banning of plastic bottles in school canteens.

### *Procedure*

For the design of the initiative the Municipality contacted the non-profit Association "Ecologos" which had already worked with the Municipality for enabling the sale of detergents in bulk. The Association took care of:

- the start up of the initiative at the municipal crèche,
- the contact and suppliers search,
- the development of communication materials,
- the involvement of volunteer participating stores that can also acquire the label "Light Shops", in order to create the basis for an environmentally oriented stores network.

#### STEP 1 - LIGHT CRÈCHE

The project "Light Kids" involves both families with children under three years of age and the municipal crèche. In December 2008, washable diapers were introduced in the crèche.

The introduction of the washable diapers was presented to the families "as a test" after an involvement stage of the operator of the municipal crèche, working both in terms of accounting/administration and in terms of organization. During the second year, the initiative has taken a structural nature.

The families can maintain at home the type of diaper they prefer and with which the child comes to crèche in the morning and leaves in the afternoon. The washable diapers are used exclusively within the structure.

#### STEP 2 - LIGHT FAMILY

From March 2009 on, the families living in Colorno were invited to use washable diapers, by assigning each child a voucher of 50 € to make the first purchase. For newborns, the voucher was delivered or sent by the municipal register at the birth notification, while for all others (up to 36 months of age) it was possible to get the voucher at the Front Office of the Public Relations Office, where all the coupons were payable, and validated, in order to be accepted by shops that had joined the initiative.

### *Instruments*

The instruments used were:

- Economic incentive (50 € assigned by a registered voucher).
- Purchase of a kit with minimum expense of 100 €.
- Discount offered by the participating shops.
- Periodic payment to the participating shops on statement presentation.
- Source of funding: budget of the Municipality of Colorno.
- Promotion by sending a letter to all families, with attached copy of the voucher.
- Delivery and signature of the voucher at the Public Relations Office and contextual delivery of a test kit.
- Validity of the voucher: 30 days.
- Opportunity to replace the expired voucher

## Timeframe

PERIOD	ACTION
MAY. 2008	Meeting with the crèche staff to assess their willingness to support a project that changes their daily habits
JUN. 2008	Evaluation of several commercial offerings from companies operating in the field to choose the best
JUN. 2008	Consultation meeting with the operator of the municipal crèche and definition of internal logistics
JUL. 2008	Starting press office activities during the project development
SEP. 2008	Meeting with the Local Health Authority to assess possible quality control and to verify the correct withdrawal, sterilization and delivery of diapers
OCT. 2008	Meeting with parents to explain the reasons of the project and its benefits
OCT. 2008	Agreement with the laundry service, to check the promptness to deal with the withdrawal, sterilization and delivery of diapers
DIC. 2008	Activation of the project at the municipal crèche
JAN. 2009	Arrangement of the voucher for the purchase of diapers
JAN. 2009	Finding stores that sell washable diapers and assistance during the start up
JAN. 2009	Beginning of the communication campaign
FEB. 2009	Beginning of families voucher delivery
FEB. 2009	Insertion of the initiative in the “Reduce-packaging” portal and monitoring of the savings achieved
MAR. 2009	Active involvement of families by assigning each child a voucher of 50 € to make the first purchase.
JAN. 2010	End of experimental phase and start of the structural and improvement phase
LUG. 2010	Renewal of the incentive to the families for the first diapers purchase
JUN. 2011	Arrangement of a final report on the initiative

## 4 .Resources

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### *Financial Resources and Human Resources*

The main expenditure concerned the information aspect, promotional activities, the activity study and the involvement of all actors. This type of path has been possible thanks to the contribution of the Parma Province.

ACTION	N. PEOPLE	N. HOURS	HOURLY COST €	TOTAL €
Meetings with crèche staff	2	8	30	480
Evaluation of the products on the market	2	8	30	480
Preparation of the vouchers	1	16	30	480
Consultation meetings with the company that manages the municipal crèche	2	12	30	720
Meeting with the laundry service and drawing up an agreement	1	16	30	480
Meetings with the parents involved	2	4	30	240
Meeting with the Local Health Authority	1	8	30	240
Identification of the available stores to sell washable diapers and assistance during the start up	2	8	30	480
Press Office	1	24	30	720
Monitoring results	2	16	30	960
Organization of information campaigns and dissemination materials	2	12	30	720
Communication campaign	Posters, leaflets, coupons, ....			2.500
Contributions to the families	Involvement of 30%			3.000
	TOTAL			11.500

### *Equipment*

- Stock of washable diapers for testing
- Vouchers for the purchase of washable diaper kits
- Communication campaign (posters, leaflets, headline board)

### *Communication Tools*

The communication campaign has provided:

- Project abstracts and final report publication in the journal “Colorno Inform@”
- Meetings organization with children’s families enrolled in the municipal Crèche.
- Press releases, news and articles published on the Colorno Municipality website and sent to local media, also in relation to the activities carried out by the Crèche.
- Communication to children’s families attending the Crèche, about the project’s content.

Operationally, the communication campaign was conducted through the distribution of leaflets, flyers and posters at public places mostly regularly visited by families.

### ***Allocation of resources over time***

At the end of project's experimental phase in 2009, there has been an economy of 600 € on the budget item "family contributions" that was used to co-finance the follow-up of the project for the year 2010. The project costs since 2010, have been covered by the Colorno Municipality through total self-financing by providing the following items:

- Purchase of washable diapers stocks for testing: 600 €
- Arrangement, printing and sending Vouchers: 500 €
- Communication campaign: 500 €
- Contributions to the families for the year 2010: 1,000 € (for 200 children)

## 5. Evaluation

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### **Results**

#### **- Participation**

The "Light Kids" project is addressed to private users, that are families with children under 3 years of age.

The Municipality of Colorno involved about 25% of the 288 families, during 2009, validating and printing 71 Vouchers.

For the effectiveness of the project over the medium and long term, the Municipality of Colorno involved other actors in the area:

- The municipal administration
- The families
- The staff and the Crèche operator
- The retailers
- The company that deals with the management of the Crèche
- The companies producing washable diapers
- The laundry service
- The media

Another positive element is that the 3 stores involved decided to work as a network, identifying the same provider in order to make it easier for families to find spare parts and compatible accessories.

#### **- Avoided waste quantities (or toxicity)**

The waste product analysis carried out in Italy in recent years, showed that disposable diapers weight represent about 4-5% of total waste produced. In the Municipality of Colorno, disposable diapers represent about 23% of the household solid waste.

#### **- Other results**

The savings that each family can obtain, choosing washable diapers.

Using disposable diapers, families have an expense that, depending on the child and on the type of diapers bought, can vary from 1,200 € to 1,800 € per child for the first 3 years of life, compared to 300-500 € for washable diapers.

(Some argue that the use of washable diapers encourages children to become "clean" at a younger age, thus shortening the period of time during which diapers are needed.)

### **Impacts**

#### **- Avoided Costs**

Specific studies calibrated on the Italian situation are pending publication, but results from two recent studies from other countries are available: an English study, conducted by the Environment Agency of the United Kingdom (Aumônier et Alii, 2008), and an Australian study, conducted by a team of environmental engineers at Queensland University (O'Brien et alii, 2009). To compare the two types of diapers and calculate their impact (according to these studies) their life cycle must be considered: from cultivation or extraction of raw materials, through their transport to the production site, processing, their transport to the distribution site, use and possible reuse, up to disposal (LCA - Life Cycle Assessment). This is not an easy task, since the variables involved are many and the scenarios are very different: the frequency of diaper changes, age of abandonment of the diaper, washing temperature, energy class washing machine, drying in the sun or in machine, etc. Therefore, the calculation of the LCA for washable diapers (WD) and disposable diapers (DD) must necessarily be

based on assumptions, approximations and averages, and the result may not be unique, but depends on the considered scenario.

	English research	Australian research
N. daily changes washable diapers (WD)	4,3- 4,7	5 - 9
N. daily changes disposable diapers (DD)	4,16	4,2 - 7
Age of abandonment of the diaper	2,5 year	2,5 year
Weight of a DD	38,6 g	45 - 55 g
Number of owned WD	30	24 - 48
Type of WD considered	prefold fitted in cotton	prefold in cotton
Temperature of washing machine	40 - 60 - 90 °C	cold wash
Standard Cleaning: Water consumption	70 l	150 l
Class A + Cleaning: Water consumption	46 l	50 l
electric dryer	yes, in 61 - 76% of cases	no

### **- Avoided CO<sub>2</sub> equivalent**

English research calculated the impact of WD and DD mainly in terms of carbon dioxide (CO<sub>2</sub>) emissions and impact on global warming. According to this interpretation, the use of DD for 2 ½ years for a single child is an average emission of 550 kg of CO<sub>2</sub>. The use of WD however, washed under standard conditions leads to an average emission of 570 kg CO<sub>2</sub>, but reduced by 40% (equivalent to 200 kg CO<sub>2</sub>) if the diapers are used in optimal conditions:

- energy-efficient washing,
- sun drying,
- re-use of WL for a second child.

Vice versa, washing at 90°C and machine drying will increase emissions by 75%, corresponding to additional 420 kg of CO<sub>2</sub>.

The Australian research clearly demonstrated the energy and water consumption, the required surface area for raw materials, and solid emissions caused by the life cycle of WD and DD (for 2 ½ year for a single child), getting resulted in the following table.

	Disposable Diaper	Washable Diaper
energy consumption	2 000 - 6 300 MJ	830 - 1 550 MJ
water consumption	35 - 75 m <sup>3</sup>	48 - 126 m <sup>3</sup>
Surface area required for the cultivation of raw materials	407-829 m <sup>2</sup> per year	13-40 m <sup>2</sup> per year
solid waste	0,64 - 0,90 t	8 - 14 kg

### **Continuation over time**

The project has fully achieved the objectives and satisfied the expectations of the Administration. In the 2010, the structural and improvement phase started. The contribution to families is now promoted in total self-financing by the municipality of Colorno.

### **Difficulties encountered**

One difficulty encountered was the lack of culture in the use of washable diapers and the methods of management of washable diapers that requires extra time connected to the process of washing and drying.

### **Monitoring System**

The monitoring system is based on two elements:

- balance between distributed Vouchers and used Vouchers
- number of children involved in the Municipal Crèche



## 6. Comparison with similar action

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### *In different location/contexts*

The "NonSoloCiripà" Association updates on its website ([www.nonsolociripa.it](http://www.nonsolociripa.it)) a report on the situation of Italian municipalities that provide incentives for washable diapers. The washable diapers initiative was launched by municipalities of all sizes, from small Alpine town of a few hundred inhabitants, as Avise (AO) and Capriana (TN), to city with over 100 000 inhabitants, including provincial capitals or regional (Genova, Padova, Verona, Vicenza, Forlì, Reggio Emilia). Almost one third of the municipalities that have offered incentives for washable diapers are small or medium sized: from 10 000 to 50 000 inhabitants.

The municipalities promoting washable diapers are mostly located in Northern Italy (78%) and particularly in the North-East: Trentino-Alto Adige and Veneto are the first regions. In the North-West, the Province of Torino in 2008, involved the 315 municipalities that compose it in the project eco-diapers. As for the Central Italy, most "virtuous" Regions have been Emilia-Romagna, Marche and Umbria. The situation is different in Southern Italy and islands, where only 5 municipalities are involved in the fight against the disposable diaper, all concentrated in Campania and Puglia.

### *At different scales*

The report of the "NonSoloCiripà" Association ([www.nonsolociripa.it](http://www.nonsolociripa.it)) shows that the types of incentives selected by the Italian municipalities that have allocated funds to promote washable diapers are essentially two: the distribution of free kits (48% of cases) or the contribution for the purchase of washable diapers (44%). In rare situations, the promotion of washable diapers has been implemented through their introduction in the municipal crèches, as in cases of Colorno (PR) and Guardiagrele (CH).

Finally, in the last two years the towns of Vicenza and Saluzzo (CN) have chosen to support families that use washable diapers with reduction of the tax on the disposal of Municipal Waste.

Free kits provided have varied in composition. Some municipalities opted for the complete kit consisting of simpler and cheaper diapers, more testing-kitd consisting of a few diapers, perhaps the most advanced and expensive types.

Other local entities, encouraged families through various initiatives including: the organization of training events designed to raise awareness of citizenship, such as Salerno, the spread of diapers in shops and supermarkets, as in Trento; the support for the local production of washable diapers, as in the recent case of the Puglia Region, which helped start-up a design, manufacture and sale activity.

See also Pre-Waste factsheet 82, "The real Nappy capaign in the UK"

## **7. Lesson learnt & recommendations**

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### ***Opportunities & Challenges***

The Municipality of Colorno is preparing a final report on the initiative which, based on the experience of these years, will discuss the opportunities and challenges for the reduction of waste in the coming years. At the moment the report is not yet available.

### ***Key factors of success***

One key factor of success is that the voucher not used within the 30-day validity period can be replaced. The Voucher can be made payable only for resident children. For each voucher, the Public Relations Office records its steps over time and during the different stages from the family to the shop and to the municipality.

### ***Recommended improvements/adaptation***

The final report that Municipality of Colorno is preparing will confirm any kind of improvement to be implemented in order to make more effective the initiative.

### ***Recommended indicators and monitoring***

To improve the evaluation of the effectiveness of the initiative undertaken by the Municipality of Colorno, it could be useful to introduce the following indicators:

- amount of waste reduced in kg per capita
- relationship between purchased kits and used kits