Climbing the Waste Hierarchy Mountain

Guidelines for the Introduction of a Refillable Glass Bottles System in Italy

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Master in Sustainable Development, Environmental Policy and Management

September 2010 – March 2011, Utrecht University, The Netherlands

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Acknowledgements

Forewords

If I had to think to the reasons behind the choice of this topic, I think I could say that since I was a kid I always felt attracted to glass. In history museums, my favourite parts have always been roman-style glass pottery sections. I was impressed by the purity of this material, its transparency, the multiplicity of its colours, its reliability and at the same time its fragility. Even at the beach, my favourite hobby has always been collecting as many colourful pieces of glass as I could, those that have been slowly rounded-off by water and wind.

All the year through my father, who works as a doctor in a little town named Bentivoglio in the province of Bologna, kept on coming home with handmade and home-grown products, sign of long-lasting trust relationships between him and his patients. One of these was, and still is, an exquisite tomato passata packed into small old-fashioned Schweppes bottles. Since the old lady has been constantly willing and happy to provide my family with more and more of her excellent tomato sauce, one of my few house duties has been washing the small bottles before she could refill them again.

Concerning our wine stock (a typical Italian family could not cope without), my father once a year refills several crates with wine locally produced by the old Benito. As much as with passata bottles, my duty has been washing and preparing the empty bottles before they got refilled. The fact that these bottles were not of our property always made me see glass bottles as common goods.

When I moved to the Netherlands in 2009, a friend of mine informed me that you can receive 10 c for every empty 33cl beer bottle you bring to the shop. Being this only one part of the story, it took me ingenuously a while before I realized there was a deposit to pay for every bottle purchased...

Abstract

The European directive on Waste and Packaging Waste 94/62/EC sets clear waste reduction and waste recycling targets but does not develop specific strategies to reach such targets. Member States therefore adopted different waste management strategies according to their economic possibilities and consumption patterns. The strategy adopted by Italy consists of a compulsory adhesion by packaging producers and users to CONAI, the National Packaging Consortium. Even though this system successfully managed to reach European targets, reuse measures still have to be officially undertaken. Given that not only an increase in packaging waste generation is documented for Italy as much as for most of the other EU member states but also that according to the latest European instructions (2008/98/EC) Member States have to honour reuse targets, this research suggests the introduction of a refillable glass bottles system as a strategy for Italy to reach, at least partly, reuse targets. Already in use in several countries such as Germany, Denmark and The Netherlands, refillable systems consist of the application of a deposit on the packaging of certain types of beverage which is refunded at the moment of the return of the empties. Purpose of the system is to avoid waste production and waste recycling through refilling several times the same packaging. Aim of this research is to provide guidelines for the introduction of a refillable system in Italy. In order to do so, interviews have been conducted to find out to what extent the capacities needed to introduce and sustain a refillable system are developed and which factors are likely to hamper the development of these capacities. While results showed that neither particular economic nor organizational capacities are needed, it is rather clear that several improvements are required at the institutional level. On the one hand, in facts, results show that neither operations such as the purchase of bottle cleaning machinery nor the adoption of standard models of bottles nor reverse logistic organizational aspects are considered hindering factors for the introduction of a refillable system. On the other hand, more education and a more socially responsible behaviour are required at the consumer's level, while more attention and foreseeing for environmentally friendly issues and more long term approaches are required at the government's level.

"We must use every tool available to combat bottles referendums this year (1976) in Maine, Massachusetts, Michigan, and Colorado where Communists or people with Communists idea are trying to get these states to go the way of Oregon"

(Quoted in Kent Moore & Scott, 1983)

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Chapter I

Introduction

1.1 The issue

The rising level of prosperity in industrialized countries caused an increase in the number of products and services produced and consumed. This economic development faced however a serious drawback in terms of generated waste. In order to face the problem of increasing waste generation, the development of the recent European policies on waste and packaging waste has been more and more steered towards waste prevention and waste reduction. The latest directive 2008/98/EC provides, together with specific targets (e.g. minimum amount of recycling), a hierarchy of management options which consists of 1) *waste prevention*, 2) *preparing for reuse*, 3) *recycling*, 4) *recovery* and 5) *disposal*. Even if the aim of this policy is to encourage European countries to adopt environmentally sound options EU Member states show rather different performances which do not always comply with the requirements. If we look at recycling rates, for instance, Austria reached 68,4% while Romania only 28,6% (Eurostat, 2006). Moreover, in 2007 eight EU members landfilled less than 40% of municipal waste while seven landfilled more than 80% (EEA, 2009). A first explanation, even though difficult to quantify, is the higher environmentally friendly attitude of some countries with respect to others. A second more practical explanation is the freedom left by the EU directives in the means to reach the targets. Countries such as Germany and The Netherlands, for instance, developed rather strict directives even before the realization of the 1994 European Directive on waste and packaging waste. Despite different approaches, the German Packaging Ordinance (1991) and the Dutch Covenant (1991) both aim at high recycling rates and waste prevention by imposing high levels of re-use, recycling and almost avoiding landfill options. Rather differently, countries like United Kingdom, Greece and Poland are still far from the implementation of strict rules (Eurostat, 2006).

1.2 Problem statement

Even though exploring the causes that lead to divergence between European countries in terms of waste management performance is indeed an interesting topic, this will be too far from the scope of this research. Instead, this research looks at a single European country and suggests a measure to improve waste management performance. For this research, Italy is selected as study case. Worldwide considered a great source of innovation clusters and fantasy, examples of which can be found in the food, luxury, racing cars and motorbikes, naval, fashion industry and so on, Italy reached in recent times several results in the environmental field too. Great efforts have been made towards compliance with EU requirements but there is still space for improvement in waste management performance. Even though recycling has increased and landfill has been dramatically reduced from around 95% in 1995 to about 50% in 2007 (EEA, 2009), waste management

performances drastically differ from North to South. Separate waste collection, for instance, reaches 42.5% in the North, while only 20.8% in the Centre and 11.6% in the South, bringing the national average down to 27,5% (ISPRA, 2010). Furthermore, the waste crisis that is currently affecting the Campania region reveals weaknesses in formulating long-term solutions. The CONAI (National Packaging Consortium) is the institution created in 1997 with the Ronchi decree which links packaging producers and users with waste legislation and its purpose is to pursue material recycling and recovery objectives set by European legislations. The CONAI system works in the direction of waste reduction through economic incentives to producers for packaging volume and weight reduction and is acknowledged for being a well functioning tool in line with consumption patterns. However, such prevention measures can be criticized since the reduction in the weight of packaging does not imply a reduction in the total amount of that packaging by not reducing the number of items produced. In addition, if working on the reduction of packaging is unarguably a waste prevention measure, it can be criticized for fostering recycling and for not encouraging consumer consumption pattern's reduction. Not by chance it has already been recommended to Italy to "pursue efforts to increase separate collection of urban waste, including packaging materials, and adopt economic and regulatory measures to further develop the recycling markets and industry" and to "develop the use of economic instruments and voluntary agreements aimed at reducing waste generation" (OECD, 2002; 5).

The problem that this research wants to tackle is the lack of packaging reuse among the Italian waste prevention measures (ADEME, 2009). Given that "preparing for reuse and recycling shall be increased to a minimum of overall 50% by weight by 2020" (Directive 2008/98/EC; L 312/13) and "Member States shall establish...waste prevention programs not later than 12 December 2013" (Directive 2008/98/EC; L 312/18) and given that increase in waste generation are documented for Italy as much as for the rest of EU member states, the lack of reuse practices might soon reveal non-compliance with EU regulations. Even though recycling activities are rather successful and recycling targets required by the Directive 94/62/EC on waste and packaging waste have been successfully honoured, the lack of more radical waste prevention measures is likely not only to cause severe sanctions for not honouring future targets, but also to further endanger the current waste crisis.

1.3 Knowledge gap

Neither directive 94/62/EC nor directive 2008/98/EC provide specific guidelines for waste prevention measure. For instance, examples provided in Annex 1 of directive 94/62/EC are very limited and they offer very basic ideas of fields to which waste prevention measures can be applied. As many other European countries Italy is currently missing concrete suggestions and measures for the improvement of its waste management performance. While several *ex-post* scientific studies carried out evaluations of waste management performances (e.g. EEA, 2005; EEA, 2009) or evaluations of policy effectiveness (e.g. ADEME, 2009), no *ex-ante* research on how to improve the waste management performance of a specific country through the introduction of a waste

prevention measure has been ever carried out so far.

1.4 The focus

According to the directive 2008/98/EC, Article 3 defines *prevention* as "measures taken before a substance, material or product has become waste, that reduce: a) the quantity of waste, including through the re-use of products or the extension of the life span of products; b) the adverse impacts of the generated waste on the environment and human health; or c) the content of harmful substances in materials and products"; *reuse* as "any operation by which products or components that are not waste are used again for the same purpose for which they were conceived"; and *preparing for re-use* as "checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing" (Directive 2008/98/EC; L 312/10). Reuse is a method of waste prevention which ranks higher than recycling in the waste hierarchy since recycling processes require additional raw material and significant amount of energy for the creation of new products. Among all the possible reuse practices (primary packaging, secondary packaging), the reuse of packaging waste (primary packaging) is selected for this research. More specifically, this research will take into account only glass packaging for beverage purposes. The selection of the focus looks as follows:

EU waste hierarchy → Waste prevention → Reuse → Packaging → Glass bottles

The *refillable glass bottles system*, or simply refillable system, is a typical example of packaging reuse. It consists of an application of a deposit on the packaging of certain types of drinks (usually beers and sodas) which is refunded when the empty packaging is brought back. Based on an economic reward, such system prevents additional waste generation by refilling several times valuable packaging that would be otherwise recycled or disposed. Such practice also motivates consumers to act more responsibly with regard to their disposal habits. After all, refilling empty bottles is an old, common and easy practice that people have been doing since glass bottles were invented. However, in recent times glass bottles lost their value since consumers increasingly preferred the convenience of disposable packaging. At the same time increasing recycling possibilities did not play in favour of reuse practices. Nevertheless, some European countries such as Germany and The Netherlands never gave up reusing glass packaging and adopted deposit reuse schemes even before European regulations (Harveland, 1998). Even though several other waste prevention measures are undertaken under CONAI's supervision, Italy lacks a refillable glass bottles system. In order to comply with EU Directives and regulations, Italy must bring its reuse practices to a 50% by weight in 2020 and present waste prevention programmes not later than 12 December 2013 (Directive 2008/98/EC; L 312/18). The refillable glass bottles system is chosen for this study as a best practice example. Notwithstanding the generation of plastic waste (2.133.000 tonnes) and glass waste (2.202.000 tonnes) of Italy are almost the same (Eurostat 2006), the

selection of glass bottles as a focus is justified by the high consumption patterns of wine and bottled mineral water by the Italian population (Nationmasters) on the one hand, and the feasibility of glass packaging as a refillable material compared to others (PROEUROPE, 2008; EUROPEN, 2009) on the other. Since a deposit-refund system is considered an efficient way to "promote recycling as a part of a larger effort to reduce waste management and conserve the environment" (Kulshreshtha, 2001; 380), the introduction of a refillable glass bottles system in Italy is envisaged as a measure to rise reuse levels at a national scale.

1.5 Research objective

This research aims at providing guidelines for the introduction of a refillable glass bottles system in Italy. In order to do so, it is necessary to: 1) define which capacities are required to introduce a refillable system; 2) explore to what extents the capacities required to introduce a refillable system are developed; 3) find out which factors play a role on the development of these capacities and 4) find out how a returnable system can be introduced.

1.6 Research question

The provision of these guidelines has to be based on the quest of certain factors that cover all the aspects and capacities needed for the implementation of a refillable glass bottles system. While more extended explanation of how capacities are determined will be provided in Chapter IV, be it sufficient here that it is believed that certain institutional, organizational and economic capacities are needed for the implementation of a refillable glass bottles system. *Institutional capacities* include not only governmental, legal and political aspects but also social norms. By *organizational capacities* are intended logistics, adaptation of the market and the industry and infrastructural aspects. *Economic capacities* encompass investments and technological aspects. The identification of these capacities is the result of research on literature on capacity and capacity development (Van Loon, 2009; UNDP, 2008; Morgan, 2006; Mizrahi, 2004; Willems and Baumert, 2003; Bolger, 2000; Sagar, 2000; Lusthaus, 1999; Morgan, 1998) and on waste management, refillable containers, deposit laws and reverse logistics (Crosby and Taylor, 1982; Moore and Scott, 1983; Lesser and Madhavan, 1986; Kroon and Vrijens, 1995; Wilson, 1995; Harveland, 1998; Taylor, 2000; Gonzalez-Torres, 2003; Salhofer, 2007). If the aim of this work is to provide guidelines for the introduction of a refillable system in Italy, the research question addressed by this research is:

> *Which institutional, organizational and economic capacities are needed for the implementation of a refillable glass bottles system in Italy and how can such system be introduced successfully?*

Furthermore, in order to facilitate and guide the answer to the main research question, six sub-

questions will be addressed throughout this research:

Chapter	Sub-question
II	Why introducing reuse measures?
III	How does a refillable glass bottles system work?
IV	Which capacities does the functioning of a refillable glass bottles system require and which factors play a role in the development of these capacities?
V	How can the search for the capacities be pursued?
VI	To what extent institutional, organizational and economic capacities are developed and to what extent external and internal factors play a role in the development of these capacities?
VII	How can a refillable glass bottles system be introduced and stimulated?

By following a step-by-step approach, every sub-question has the purpose to build the road to the answer to the final question. Every chapter will address a sub-question at its beginning and present the answer at its conclusion. By doing this, it is made sure that every chapter represents a building block of the whole research.

1.7 Research perspective

By looking at the problem of how it is possible to implement a refillable glass system in Italy, a number of different perspectives can be taken. This research looks at how a refillable system can be introduced successfully in Italy through a *capacity development perspective*. Undertaking a capacity perspective is intended as approaching the issue through a systems perspective. This means that "addressing capacity needs, by strengthening skills, processes and systems, will not hold the promise of sustainable results if it does not take into account the inherently political and complex realities of the environment in which it evolves" (UNDP, 2008; 3). As much as waste management studies call for the inclusion of a wide range of actors and organs due to the intrinsic management difficulties and the fragmentation of its models (White et al., 1995; Liebman, 1997; Tchobanoglous, 2009), capacity and capacity development studies require broad systems perspective on capacity development issues. Waste management issues cover in facts not only technical insights on waste composition or treatments, but also governance, partnerships, decision making processes, stakeholder involvement, consumer's behaviour and so on. In the quest of to what extents institutional, organizational and economic capacities are developed and how a refillable system can be introduced, this research necessarily touches upon fundamental aspects of governance, social values and norms, politics, policy design, market, and economy.

1.8 Research methodology

This research follows the approach of the *design-oriented* research. As part of practice-oriented research, design-oriented research is "about intervention in order to change and existing practical situation" (Verschuren & Doorewaard, 2005; 36). If design-oriented research is generally intended as carrying out a design project, two conditions have to be met in order to carry out the project in a successful manner: a) "the problem needs to be properly identified and defined" (Ibid; 40) and b) "the problem to be solved must be diagnosed" (Ibid; 40). If the project can be identified as providing guidelines for the introduction of a refillable system in Italy, the two conditions require not only the provision of a solid base for discussing hindering problems, but also an assessment of these problems. In accordance with the characteristics of design-oriented research, this research is therefore divided in three parts:

Desk research (Chapters from II to V). The research part has a descriptive purpose and it aims providing of information on the following issues: a) increasing waste generation as a shared European problem; b) contents and requirements of the European policy on waste and packaging waste; c) waste management and divergence of European countries; d) the current situation of waste management and waste management policies in Italy; e) market-based instruments and reuse deposit schemes and f) capacity development. Desk research serves therefore not only to create a solid base for problem definition but also to the development of the research framework.

Data collection and evaluation (Chapter VI). Given that no feasibility study on the introduction of a refillable glass bottles system in Italy has been ever undertaken before, no literature is available on the issue and further research must be carried out. Semi-structured interviews with specific stakeholders and experts have been conducted for qualitative data collection. The purpose of such interviews is to gain a deeper understanding of the capacities, both possessed and needed, for the implementation of a refillable glass bottles system. The selection of the stakeholders is the result of both a stakeholder analysis and the selection of additional experts in waste management, politics, environmental policies and sociology in order to gain as much insights as possible. Data collection aims at finding not only the capacities that are needed for the introduction of a refillable system in Italy, but also tries to understand the causes that prevented and still prevent Italy from adopting such a system (Verschuren & Doorewaard, 2005).

Design (Chapter VII). The design part includes the formulation of the guidelines according to the results obtained. As suggested by Verschuren & Doorewaard (2005), the design part necessarily has to emerge from previous research including, in particular, knowledge on the historical roots of a problem as a link to the search for a solution. Based on the UNDP framework steps for capacity development, aim of this part is to provide a tool for the eventual introduction of a refillable system in Italy.

1.9 Scientific relevance

The lack of concrete examples and instructions for the improvement of European Members' waste management performances is considered by the author to be a weak point of the EU Directive on waste and packaging waste. The relevance and value of this research is therefore placed in its being a guidelines provider for the achievement of higher waste management performances. Specifically, within the scientific literature a capabilities study for the implementation of a refillable glass system has never been carried out before, neither in Italy nor in any other country. This research therefore puts the foundation for a theoretical framework that can be used for similar studies in other countries.

1.10 Societal relevance

This research strongly supports the introduction of this reuse practice as a way not only to reduce the total waste generation of Italy, but also as a way to stimulate environmentally friendly behaviours among Italians. Glass bottles are reliable objects whose production requires great amounts of energy and raw materials. People should learn respect for valuable objects and try to overtake disposable habits of our consumerist society.

1.11 Outline

Provided that an introduction has already been given in this chapter (chapter I), this work consists of 9 chapters in total. Chapter II discusses first the problem of increasing waste production at a European level and then describes the waste management performance of Italy. Chapter III provides insights on command-and-control and market-based approaches to waste management and it explains the functioning of reuse deposit schemes. Given that this research is led by the quest for those capacities that are needed for the implementation of a refillable system in Italy, chapter IV offers a literature review on capacity development and derives from it the analytical framework and research question. Chapter V presents the methodology used for data collection and provides the list of the interviewees selected through stakeholder analysis. Chapter VI presents and evaluates the results obtained touching upon social, political and economic aspects that prevented and still prevents Italy from adopting a refillable system. By following the capacity development steps provided by the UNDP, Chapter VII develops the guidelines based on the results presented in Chapter VI. Chapter VIII discussed the validity of the methodology used and offers suggestions for further research. Lastly, Chapter IX signs the conclusion of this research by answering the research question and by describing its scientific and societal value.

Chapter II

Waste and packaging waste: common problems, different solutions

Even though the European policies on waste and packaging waste of the last years have been more and more pushing towards waste prevention, the generation of waste is increasing. European Member Sates have been working in some cases very efficiently in order to honour the targets set by the directive on waste and packaging waste 94/62/EC. However, notwithstanding common directives and objectives, European countries show rather different performances. This chapter gives first a brief picture of waste and packaging waste performances at a European level and discusses then the functioning and the results of the Italian waste management system. This chapter addresses the sub-question 'Why introducing reuse measures?'.

2.1 Waste and packaging waste in the EU: a brief overview

According to the reports provided by the European Environmental Agency (2009) a common trend of increasing waste production seems to affect almost all the EU member states. The generation of waste among European countries has been in facts steadily, even though not dramatically, increasing during the last years. Salhofer relates this trend to the growing industrialization and welfare of consumerist society: "with a rising level of prosperity in industrialized countries, an increasing number of products and services are being produced and consumed. This development is reflected in the amount of waste generated. Data from the past three decades show that the total amount of municipal solid waste is continuously rising" (2008; 245). By looking at the total municipal waste, almost the 80% of the 220 million tonnes produced in 2006 in the EU15 has been generated by Germany, United Kingdom, France, Italy and Spain, while Poland, Hungary and Czech Republic are responsible for the generation of 74% of the 24 million tonnes of waste produced in the EU10 (ISPRA). For what concerns the per capita generation of municipal waste, in the EU15 it counted 505 kg in 1995 and it reached 563 kg in 2006 (equal to an increase of 11,5%) while the average production of EU10 reaches 322 kg only (ISPRA). In order to solve the problem of increasing waste production, the European Commission developed several policy tools which push towards waste prevention. In order to reach the ultimate goal of waste reduction, the European Commission created a 'waste hierarchy' whose aim is to encourage European countries to adopt environmentally sound waste management options under a common framework for action. Such hierarchy ranks the preferred waste management options as follows: (1) waste prevention; (2) preparing for reuse; (3) recycling: (4) recovery; (5) disposal. However, EU member states still show rather different performances in waste management. If we look at recycling rates, for instance, Austria reaches 68,4% while Romania only 28,6% (Eurostat, 2006). Moreover, in 2007 eight EU members landfilled less than 40% of municipal waste while seven EU members landfilled more than 80% (EEA, 2009). These differences are normally due to parameters such as national markets consumer habits, culture, population density, urbanization rates and other aspect which have direct influence on the shaping of national policies (Harveland, 1998; ADEME, 2009).
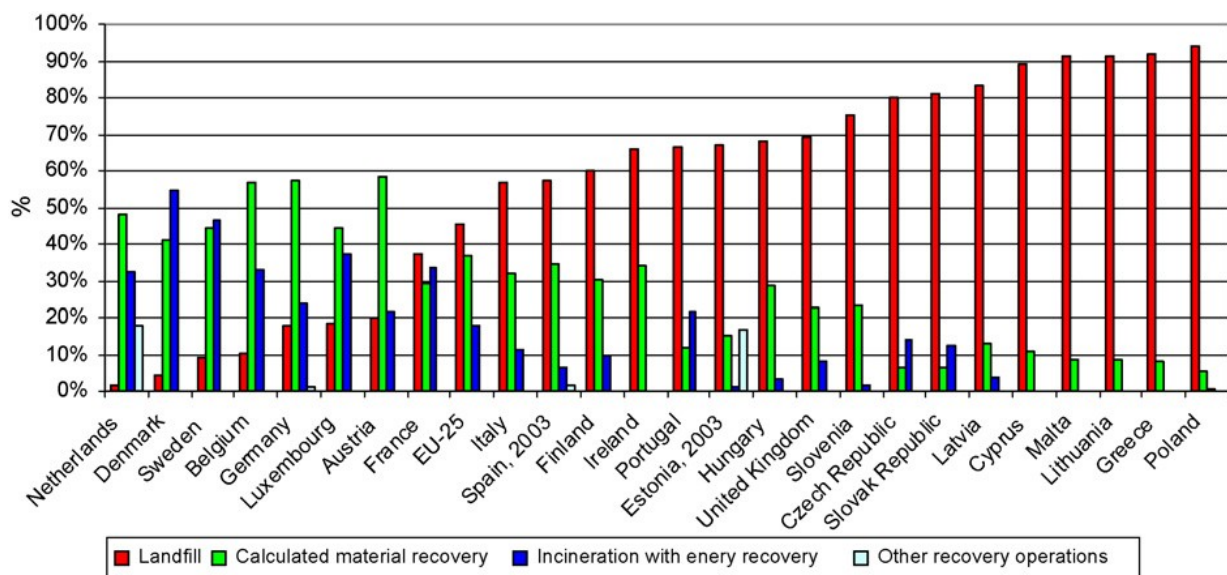
Figure 1. Share of waste management options by countries in year 2004 (Source: EEA, 2007).

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Austria	138	140	141	146	137	132	142	134	135	141	143
Belgium	133	140	145	146	138	144	156	155	158	158	158
Denmark	172	158	159	160	161	159	177	175	181	179	180
Finland	81	82	86	86	88	87	118	124	131	129	132
France	190	199	205	212	208	206	204	204	197	200	202
Germany	167	172	178	184	182	187	187	188	188	196	196
Greece	68	76	81	88	92	94			96	95	94
Ireland	164	184	187	209	212	217	202	205	222	241	245
Italy	166	188	193	194	195	197	200	209	204	207	212
Luxembourg	181	181	182	182	181	191	194	204	212	222	214
Netherlands	176	161	164	182	186	193	208	197	205	211	212
Portugal	84	102	120	123	127	128			135	142	164	162
Spain	147	159	155	164	146	156	173	172	180	181	189
Sweden	104	108	110	110	114	115	158	164	167	156	158
United Kingdom	171	175	157	156	158	167	168	170	171	173	174
EU15	160	168	169	174	172	176	174	179	182	186	186

Table 1. 2007 per-capita packaging waste generation (1000 tonnes) in EU 15 (Source EEA).

Certainly, packaging represents an important growing stream of the total amount of waste. In 2006 the EU25 production of packaging waste reached 79,6 million tonnes, accounting for about one third of the total amount of municipal waste: of this amount, more than 90% is generated within the EU15 only (ISPRA). In line with the overall increase in waste production, there is a general increase in quantities of packaging being put on the market. The policy on waste and packaging waste 94/62/EC (and its following amending acts 2004/12/EC, 2005/20/EC) is developed under the waste hierarchy concept and it sets the following targets: (1) by no later than 30 June 2001, between 50 and 65% by weight of packaging waste to be recovered or incinerated at waste incineration plants with energy recovery; (2) by no later than 31 December 2008, at least 60% by

weight of packaging waste to be recovered or incinerated at waste incineration plants with energy recovery; (3) by no later than 30 June 2001, between 25 and 45% by weight of the totality of packaging materials contained in packaging waste to be recycled (with a minimum of 15% by weight for each packaging material); (4) by no later than 31 December 2008, between 55 and 80% by weight of packaging waste to be recycled; (5) no later than 31 December 2008 the following targets for materials contained in packaging waste must be attained: a. 60% for glass, paper and board; b. 50% for metals; c. 22.5% for plastics and; d. 15% for wood.

Material	EC targets	Sweden (2)	Germany	Austria	Italy	The Netherlands (1)	Denmark	France
Overall	55	60	55	55	55	65	55	55
Glass	60	70	60	60	60	90	80	60
Plastic	22.5	30	22.5	22.5	26	30	22.5	22.5
Paper and cardboard	60	65	60	60	60	75	60	60
Metals	50	70	50	50	50	80	50	50
Wood	15	15	15	15	35	25	15	15

(1): Individual and annual targets 2006-2009; (2): 2009 targets

Table 2. Examples of 2008 recycling targets sorted by country and material (Source: ADEME, 2009).

The Packaging Directive, once transposed to the Member States, gave rise to a wide variety of national regulations that in several cases set even more ambitious targets than the one required by the Packaging Directive (e.g. Sweden and The Netherlands). Amongst EU Member states different waste reduction measures have been undertaken, including command-and-control regulations, social-psychological incentives and economic incentives (Wilson, 1996; Taylor, 2000). Original targets have been honoured in almost every EU country and in some cases even exceeded. However, the increasing generation of packaging waste, whose trend has been documented almost across every EU country, is clearly clashing with the primary aim of packaging waste reduction of the directive 94/62/EC.

2.2 Italy

In line with the trend of other EU members, the production of waste is increasing in Italy too. If in 1997 the total production of waste reached 87,490 million tonnes, in 2006 it was almost doubled, reaching 167,235 tonnes (ISPRA). The per capita production of urban waste accounts for about 450 kg in 1995, while in 2007 accounts for more than 540 kg (ISPRA). As figure 1 shows, it cannot be said that Italy can be taken as a waste management example. According to the most recent statistics, landfill still in facts represents the most largely used management option counting for a 47.9% (ISPRA). It has to be however acknowledged that landfill practices have been dramatically decreasing in the last fifteen years together with a parallel increase in incineration capacities (Mazzanti & Zo-

boli, 2008). While in 1996 about 1.500.000 tonnes of waste have been incinerated, in 2007 this amount has more than doubled, reaching 4.000.000 tonnes (ISPRA).

Likewise within EU member states, waste management performances differ to a high degree within Italian regions. The separation of waste, for instance, drastically changes from 42,5% (North), through 20,8% (Centre), to 11,6% (South), bringing down the national average of 27,5% (ISPRA). Such high differentiation in waste management performances is documented not only from North to South but also from region to region.
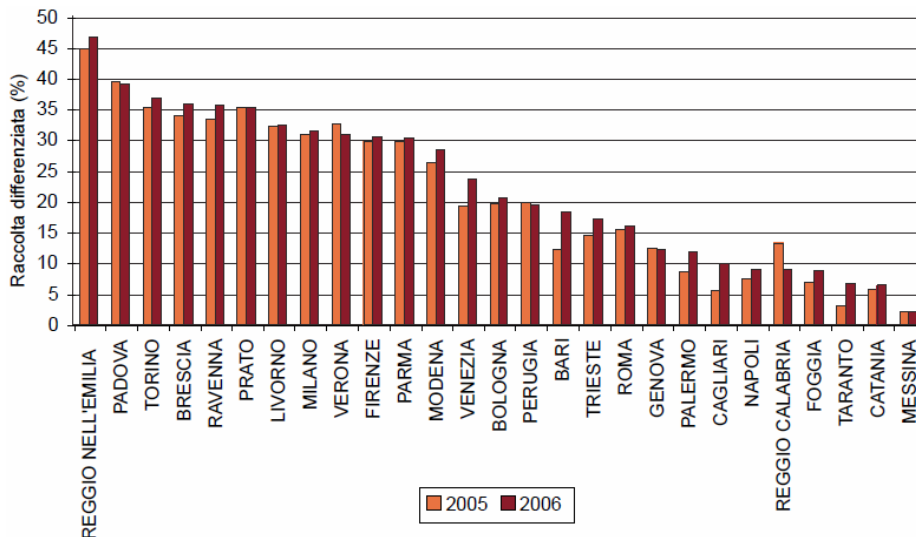
Figure 2. Trends in separate waste collection between 2005 and 2006 in the main Italian provinces (Source: ISPRA).

The first and real breakthrough in the history of Italian waste policies is represented by the so called 'Ronchi Decree' (Decreto legislativo 5 Febbraio 1997, N. 22). Named as such after the Minister for the Environment Edoardo Ronchi and implemented in 1997, this decree is the official transportation (together with the directives 91/156/CEE on waste and 91/689/CEE on hazardous waste) of the directive 94/62/EC on waste and packaging waste to the national level. Before it, very few decrees have been enforced. The Ronchi decree prescribes that regions should put into practice municipal waste management policies, leaving space for interpretation about the concrete measures that have to be adopted. A lot of attention is put on the division of tasks and competences between the state, regions, provinces and municipalities emphasizing the possibility to establish contracts between actors involved for a more efficient waste management. Such decree enormously contributed not only to the reduction of landfill (OECD, 2002) but also to the encouragement of recycling through the institutionalization of the CONAI. The CONAI, Consorzio Nazionale Imballaggi (National Packaging Consortium), is a non-profit consortium empanelled by packaging producers and users and its scope is to honour the targets set by European and national legislations. With more than 1.400.000 registered enterprises, CONAI is the official organism which guarantees the passage from a waste management system based on disposal to an integrated system based on packaging waste material recovery and recycling.

Activity	Responsible body
Transposition of directive into national legislation	Ministry for the environment and territory
Monitoring of meeting targets (national + directive)	National Observatory on Waste + APAT
Monitoring and control of compliance	National Observatory on Waste + APAT + Provincial Authorities + CONAI
Information on management of packaging waste	Local authorities + CONAI
Supplier of packaging data	Producers (manufacturers/converters/importers) + users (wholesalers/distributors/fillers)
Collection of packaging waste: - From households - From industry/commerce	Local authorities under contract with CONAI Material specific consortium
Recycling and treatment of packaging waste	Material specific consortium
Expenditures of packaging system covered by	Producers (converters) and importers

Table 2. Distribution of responsibilities in the Italian packaging system (Source: EEA, 2005).
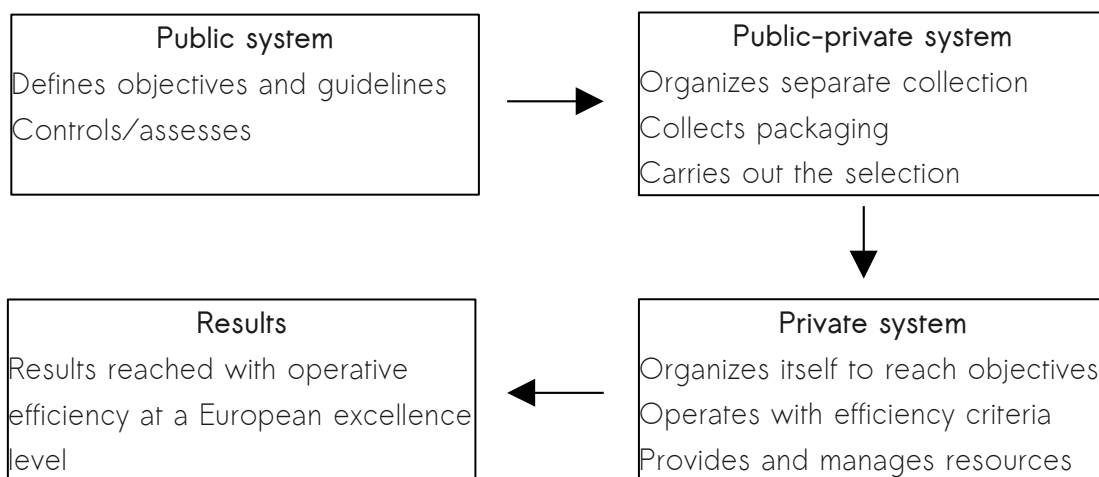
Figure 3. The CONAI management scheme (Source: CONAI, 2010).

Divided in six consortia, each of them representative of the materials used for the creation of packaging (paper, glass, aluminium, steel, plastic and wood), the CONAI is driven by the polluter-pays principle and the shared responsibility concept. Enterprises are asked not only to take into account the environmental impact of their production processes, but also to be responsible for their products, both in its use and its disposal. The shared responsibility concept implies the inclusion of all the actors involved in waste management processes: enterprises producing (raw materials producers) and consuming (commerce and distribution) packaging, responsible for the correct end-of-life disposal of their products, the public administration which defines waste management rules, and citizens, which become actors through accomplishing separate collection. If on the one hand the adhesion to CONAI is compulsory for packaging producers and users, it is not compulsory, on the other hand, for regions and waste dealers. In other words, while producers, importers and users

of packaging material share a joint responsibility for recycling and recovery through the payment of an environmental contribution for the amount of packaging introduced into the market, the collection of packaging waste is carried out by local authorities under voluntary agreement with CONAI (so called 'ANCI-CONAI agreement'). A 'correct' management is defined as the reaching of recycling and recovery objectives divided by single and national targets:

	Target 2002	Target 2008
Total recovery	50%	60%
Total recycling	25-45%	55-80%
Recycling per material		
Paper	15%	60%
Wood	15%	35%
Steel	15%	50%
Aluminium	15%	50%
Plastic	15%	26%
Glass	15%	60%

Table 3. Evolution of recovery and recycling targets sorted by material (Source: CONAI, 2010).

For what concerns waste prevention measures, they seem to be centred almost exclusively on producer responsibility, without any attention to consumer responsibility. Waste prevention measures are based on economic rewards for 'good behaviour' of goods producers (e.g. the lower the weight of packaging, the lower the environmental contribution). However, such measures do not automatically imply a reduction in the total amount of waste since consumers are not steered in their daily choices. Since a general increase in waste production has been documented all over European member states, it is not possible to attribute the responsibility exclusively to the Ronchi Decree, which, amongst other, is acknowledged as a major contributor to a drastic reduction of landfill options, a high increase in the separate collection of waste and rather high quality composting (OECD, 2002). After the Ronchi Decree, the Decreto Legislativo 152/2006 is the latest translation of EU directives on waste. This Directive seems to be a more complete instrument when compared to the previous Ronchi Decree since it does not deal exclusively with waste, but also with Strategic Environmental Evaluation (*VAS, Valutazione Ambientale Strategica*) and Environmental Impact Evaluation procedures (*VIA, Valutazione d'Impatto Ambientale*), soil and water pollution prevention procedures, air pollution and prevention of emissions. The Decree 152/2006 is based, besides other former EU directives, on the 2004 EU directive. Still, it is not clear yet if the EU 2006 and 2008 directives on waste have been adopted or not. De facto, whether or not these last directives are translated into national policies, as an EU Member Italy must comply with these directives. Nevertheless, it has to be noted that in the meanwhile several others decree, whether successfully or not, has been enforced. However, a large number of these decrees often concerns drastic measures in order to solve specific problems such as the widely known waste management crisis which affected the Campania region, while the rest are corrections or adjustments of previous decrees (e.g. Decreto Legislativo 4/2008).

Notwithstanding the improvements brought by the Ronchi Decree and the CONAI, it has been recommended to Italy to further improve its waste management performance through the adoption of measures tackling waste generation (OECD, 2002; 5). CONAI measures, for instance, do not include any packaging reuse practice (EEA, 2005; ADEME, 2009). Since "preparing for reuse and recycling shall be increased to a minimum of overall 50% by weight by 2020" (Directive 2008/98/EC; L 312/13) and "Member States shall establish...waste prevention programs not later than 12 December 2013" (Directive 2008/98/EC; L 312/18) and given that increase in waste generation are documented for Italy as much as for the rest of EU member states, the lack of reuse practices might soon reveal incompliance with EU regulations.

2.3 Conclusion

The European policy on waste and packaging waste sets clear targets, but the decision on the means to reach these targets are left to the countries their selves. Notwithstanding the priority of waste reduction set by the policy 94/62/EC on waste and packaging waste and notwithstanding recycling targets have been met, an increase in packaging waste production is documented almost in every EU member state. In Italy, the Ronchi Decree and the Decreto Legislativo 152/2006 represent, respectively the acquisition at the national level of the 1994 and 2004 European directives on waste and packaging waste. Within their operative framework, CONAI is a special consortium system launched by the Ronchi Decree working towards packaging waste prevention through financial instruments to producers. Even though the CONAI system radically helped Italy reaching recycling targets, reuse practices are not yet implemented. The production of packaging waste is increasing every year, therefore contradicting the EU waste hierarchy requirements. The need for a further improvement of waste reduction calls for additional prevention measures aimed at direct reuse and not only at packaging minimization. The following chapter therefore suggests the adoption of a type of a deposit reuse scheme, precisely the refillable glass bottles system, as a way to further reduce waste production at source through the reuse of certain types of beverage packaging and, therefore, as a way for Italy to comply with future EU directive targets.

Chapter III

A market-based approach to waste management: the deposit-refund system

Policy approaches to waste management switched in recent years from command-and-control regulations to market-based incentives. While the former forces firms to decrease their pollution under standard uniform targets, the latter is a pollution prevention mechanism based on economic incentives. Market-based instruments gained more and more terrain in recent years in opposition to previous command-and-control policy approaches due to their lack of rigidity. While approaches to environmental policy can be applied to several fields such as clean energy or air and water pollution, for the sake of this research we are going to focus mainly on solid waste management. Deposit-refund systems are a typical example of market-based policy approach aiming at reuse by ensuring that packaging is returned to be refilled. This chapter reports first the evolution from command-and-control to market-based of environmental policies approaches and then explains the functioning of deposit-refund systems. This chapter addresses the sub-question 'How does a refillable glass bottles system work?'.

3.1 The evolution of environmental policy: from command-and-control to market-based approaches

Traditionally, environmental policy has been undertaken through the use of so called *command-and-control* regulatory standards approaches. Under this approach, conventional for early environmental policy in 1970s, polluters are required to honour the applied standards (targets) under the threat of penalties. It is widely accepted that the setting of targets, however, often did not match the expectations of a feasible solution, revealing several weaknesses due to a lack of a proper systems perspective (Stavins & Whitehead, 1992; Pearce & Turner, 1993; Barde, 1994; Taylor, 2000). By setting uniform technology-based and performance-based standards for firms, command-and-control regulatory tools tend, in facts, "to force firms to shoulder similar shares of the pollution-control burden, regardless of the relative costs to them of this burden" (Stavins, 2000; 2). The application of standardized forced limits have revealed over time to be rather expensive, to slow down or even freeze technological advance and dynamic change (Ibid). Opposed to these conventional regulatory approaches are the so called *market-based instruments* (MBIs). Market-based instruments are defined as "regulations that encourage behaviour through market signals rather than through explicit directives regarding pollution control levels or methods" (Ibid; 1). Such instruments are meant to weave with market forces in order to encourage firms and individuals to undertake pollution control efforts to collectively meet policy goals. Rather than setting regulatory standards among firms, market-based instruments theoretically allow any desired level of pollution reduction at the lowest possible overall cost for the society by equalizing the incremental amount that firms spend to reduce marginal costs (pollution) (Ibid). Even though a major concern is that these market-based incentives represent an environmentally careless free-market approach, by providing a degree of freedom of choice for both producers and consumers they ensure that environmental protection is included in decision making (Stavins & Whitehead, 1992). Still, it is arguable that a

market-led choice necessarily represents the best way to reduce pollution. In addition, market-based instruments are quite likely to be not completely understood by the public given that while the costs can be transparent, the benefits to consumers are typically not visible (Stavins, 2000). According to Pearce & Turner (1993) several failures affected solid waste management due to the preference, till relatively recently, for command-and-control regulatory frameworks. These policies turned out to cause a raise in costs together with an overall little effect on targeted problems. Such failures are mainly due to flawed pricing mechanisms which did not include the real costs of generated waste (Stavins & Whitehead, 1992). Several countries, for instance, undertook piecemeal solutions, lacking comprehensive waste management plans (e.g. not inclusion of external costs), while several others lacked a comprehensive and updated information system or underwent market failures (e.g. low waste disposal financial costs and consequent under-pricing of the waste assimilating capacity of the environment) (Pearce & Turner, 1993). Not only most individuals and firms are not directly subject to waste disposal costs, which are anyway embedded in other taxes (Stavins & Whitehead, 1992), but also the full social costs (e.g. the inclusion of environmental damage costs) are not always reflected in the prices of products, meaning that the receiving capacity of the environment is therefore underpriced (Pearce & Turner, 1993; 88). Some economic studies showed that "too much waste will be produced in a market system in which environmental damage (external costs) from the waste is not reflected in the prices of the products initially produced and consumed in the market. The market fails to allocate resources efficiently because prices fail to reflect full social costs. The proper costs of landfill, incineration and composting are not reflected in end-product prices in the market place" (Ibid; 64). Concerning packaging waste, for instance, either an input package tax (a virgin materials levy) or an output packaging tax (a product charge) could be imposed to correct market failure. MBIs are found to offer a more cost-effective solution to the problem of packaging waste and litter than command-and-control regulations (Ibid). There is neither specific form of government intervention nor individual policy instrument (whether market-based or conventional) which is appropriate for every kind of environmental problem: the most suitable measure depends upon a variety of context-dependent factors (social, political and economic) in which the environmental problem is embedded (Stavins, 2000). The market-based approach has now been generally accepted in most of the industrialized countries. By playing on the price mechanism to modify human behaviour, MBIs fit neatly into cost-benefit approaches and principles of management. Still, they do not mitigate themselves problematic issues (e.g. information failure) and they therefore require carefully planned system-wide integrated management systems (Pearce & Turner, 1993). After all, the minimization of solid waste production is a decision making process which involves several stakeholders such as producers, private businesses, governments, institutions and consumers (Taylor, 2000).

3.2 Deposit-refund systems

Market-based instruments can be divided into four categories: a) pollution charges, b) tradable permits, c) market barrier reduction and d) government subsidy reduction (Stavins, 2000). For the

sake of this research only pollution charges will be taken into account. *Pollution charges* are typically fees or taxes on the amount of pollution generated by a firm or any other source and they fix the costs of pollution control. It is therefore economically convenient to the firm to the point where the tax rate is equal to the marginal abatement cost (Ibid.). The OECD (1989) distinguishes five types of pollution charges: effluent charges (based on the quantity), user charges (payment for treatment facilities), product charges (based on the potential pollution of a product), administrative charges (payment for government services) and tax differentiation (favouring 'green' products). While tradable permits are typically adopted by private-to-private resource transfers, pollution charges are typically adopted by private-to-public resource transfers. Instead of fixing the costs, they fix the level of pollution control. Together with effluent charges, user charges, insurance premia, sales taxes, administrative charges and tax differentiation, a typical example of market-based pollution charges instruments is the *deposit-refund system*. Even though applied to a small portion of the total waste stream (typically beverage containers), deposit-refund systems have been some of the most widely used system to achieve waste reduction (Wilson, 1996). They simply consist of the application of a deposit on a type of packaging which will be refunded at the moment of the return of that very same packaging. Such systems are usually applied to beverage products (mostly glass bottles) due to the economic convenience of collecting, washing and refilling bottles compared to the purchase of new empties. However, such economic convenience has disappeared in recent times because of new more efficient production systems together with the development of new packaging materials (particularly plastic, aluminium and PET). The general shift to lightweight and almost unbreakable one-way packaging has accelerated in recent years also due to the easiness in handling for all the actors of the distribution channel. With the preference of producers and consumers for more convenient types of packaging, deposit-refund systems have been dropped, causing a steady increase of waste quantities from beverage packaging (Salhofer, 2008). In general, deposit-refund systems can be attractive for three reasons: a) they contribute to the reduction of disposal (both legal and illegal) by assuring that products are returned; b) they can provide firms with incentives to prevent material losses; c) they can provide firms with incentives to use less environmentally damaging substances (opt for materials to which the deposit-refund system applies); d) they can encourage consumers to shift to a lower purchase of products sold in less recyclable products such as metals and plastics (Stavins, 2000). If it is true that some issues of concern on deposit-refund systems include labour-associated costs (labour employment for collecting purposes at the stores), it is also true that the social desirability of a refillable system critically depends on the value of the time that it takes to consumers to return the empties (Stavins, 2000). Deposit-refund systems can be further divided into *reuse deposit schemes* and *recycling deposit schemes*. The difference simply lies in the purpose of the deposit scheme, that is to say that a deposit can be either applied for reuse or recycle purposes. While reuse deposit schemes are still consider effective methods of waste reduction, even though declining, several matters of concern for recycling deposit schemes have been expresses by reliable actors in the packaging sector such as EUROPEN (European Organization for Packaging and the Environment), PROEUROPE (Packaging Recovery Organization Europe) and ADEME (Agence de l'Environnement et de la Maîtrise de l'Energie). Concerns for recycling deposit schemes are motivated by the extra environmental costs, the introduction of

unnecessary extra costs for consumers, the possible damage the viability of existing collection and recycling systems and potential distortions to internal markets, the little impact on littering, the possible diversion of beverage packaging from existing collection systems and, last but not least, the possibility of forcing consumers and industry to deal with two separate collection systems (PRO EUROPE, 2008; EUROPEN, 2009; ADEME, 2009). At present, Italy does not have any reuse deposit scheme (see Figure 2). Given that a) in order to comply with the current EU directive Member States have to meet the reuse target of 50% by weight by 2020 and that waste prevention programs have to be submitted not later than 12 December 2013 (Directive 2008/98/EC; L 312/18) and b) recycling deposit schemes have been strongly discouraged, the adoption of a reuse deposit scheme on refillable drink containers is a tool to honour such requirements.

Origin	Schemes	Germany	Austria	Denmark	Italy	The Netherlands	Sweden	France
Drink containers	Reuse deposit	X (1950s)	X (1990)	X (1967)		X (1970s)	X (from the 1890s to 2007)	
	Recycling deposit schemes	X (2003)		X (2002)		X PET above 0.5L	X (1982: Beer cans 1991: PET)	
	Compulsory quota for reusable containers	X	[X (beer)] No longer in force					
	Voluntary producers' agreement to set up a deposit scheme		X (drinks)				X (glass drink bottles)	

Table 4. Examples of deposit schemes in selected countries (Source: ADEME, 2009).

3.3 Conclusion

While the previous chapter provided evidence of the overall packaging waste increase, this chapter describes the development from command-and-control to market-based instruments for waste control. While the former approach has been slowly abandoned due to rigid and standardized impositions, the latter revealed to be a more suitable approach in line with market logics. Already in use in several European countries, deposit-refund systems are a typical example of market-based policy instruments which stimulate packaging waste reduction through its reuse. At the moment of the purchase of certain types of beverage, a monetary deposit is applied to its packaging and refunded to the consumer respectively at the purchase and at the moment of return of that same packaging. Being the purpose of collecting empties the one of refilling several times the same packaging instead of recycling it, reuse schemes assure high returns of empty packaging by levering on the consumer's pocket. While both the economic and environmental feasibility of recycling deposit scheme have been rather severely rejected, reuse deposit schemes are still seen as useful and effective waste prevention measures. Even if recycling measures embedded in the CONAI system have been effective, Italy still does not posses any packaging reuse deposit scheme. Given

that not only recycling targets but also reuse targets are set by the last EU policy on waste 2008/98/EC, it is strongly recommended that Italy adopts reuse deposit schemes. However, requiring a refillable system the coordination and the commitment of several actors such as packaging producers, drinks producers, retailers and consumer, it is believed that the introduction of packaging reuse deposit scheme calls for the possession of certain specific capacities. Aim of the following chapter is therefore to build a framework for the search of these capacities.

Chapter IV

Capacity and Capacity Development: a literature review

If a reuse deposit scheme on refillable containers has to be introduced in Italy, the requirement of certain capacities is necessary. Even though the concepts of capacity and capacity development are normally used in developing countries contexts, theoretical background on the issue is still considered useful for the creation of a research framework. The comprehensive and systemic framework provided by the UNDP offers the base for the identification and definition of the capacities this research is going to deal with. The last part of this chapter explains the driving hypothesis that there are several internal and external factors that are likely to play a role in the development of the capacities required. This chapter addresses the sub-question 'Which capacities does the functioning of a refillable glass bottles system require and which factors play a role in the development of these capacities?.

4.1 Capacity and capacity development: evolution of the concept and definitions

The literature on capacity praises a large amount of books and articles. The concept of capacity is however never approached alone but is always accompanied by terms such as 'development' (or 'enhancement') and 'building'. While capacity development implies that some capacities already exist but their strengthening is required, capacity building calls for the acquisition of the capacities needed. Even if capacity development and capacity building are concepts that are very close to each other, for the sake of this research, capacity building will not be taken into account. It is believed in facts that several capacities are possessed by Italy, being it a developed country.

By looking at the existing literature, it is possible to state that there is unanimous agreement (Morgan, 1998; Lusthaus, 1999; Sagar, 2000; Bolger, 2000; Willems and Baumert, 2003; Mizrahi, 2004; Morgan, 2006; UNDP, 2008; Van Loon, 2009) on the following points: (a) neither a unique definition nor blueprint exist for capacity and capacity development; (b) capacity and capacity development have to be considered from a *systems* perspective; (c) the concept of capacity development undergoes a dynamic process and it therefore changes over time; (d) monitoring measuring and evaluating capacity and capacity development must go further than a control mechanism designed to satisfy donor accountability; (e) there is little agreement on how to identify and measure this concept. Concerning the notion of capacity itself, Sagar (2000) and Willems & Baumert (2003) trace back the causes of the development of the broad notion of capacity to the development-cooperation contexts and theories. While technical assistance has been the main driver of infrastructural projects in developing countries, its effectiveness in strengthening local capacity to manage such infrastructure in the long term has been less successful, leading to an increasing dependence on foreign expertise. Bolger defines capacity as "abilities, skills, understandings, attitudes, values, relationships, behaviours, motivations, resources and conditions that enable individuals, organizations, networks/sectors and broader social systems to carry out functions and achieve their development objectives over time"(2000; 2). According to Morgan,

capacity refers to the "organizational and technical abilities, relationships and values that enable countries, organizations, groups and individuals at any level of society to carry out functions and achieve and achieve their development objectives over time. Capacity is about institutional, organizational and behavioural outcomes" (1998; 2). It is understandable that the definition of the term capacity cannot be more satisfying if not applied to specific contexts. Morgan defines capacity development as "approaches, strategies and methodologies which are used by national participants and/or outside intervenors to help organization and/or systems to improve their performance" (1998; 2). Bolger, similarly intends it as "approaches, strategies and methodologies used by developing country, and/or external stakeholders, to improve performance at the individual, organizational, network/sector or broader system level" (2000; 2). He implies that capacity development processes flow from 'North' to 'South' thus making of it more an external rather than an internal process. Lastly, it cannot be omitted the effort UNDP (United Nations Development Programme) made in developing a common framework. First of all, UNDP divides capacities into *technical* (areas of expertise, specific sectors) and *functional* (capacities to engage stakeholders, to formulate sound policies and strategies, to evaluate). It then defines capacity development as a "process of endogenous transformation that is based on nationally determined priorities, policies and objectives and cannot be driven from the outside" (2008; 4). On the one hand, even thought such definition seems to be too narrow, and even though it is not clear why capacity development is considered as a strictly endogenous process which cannot be driven from the outside, on the other hand it is wisely stated that "[a]ddressing capacity needs, by strengthening skills, processes and systems, will not hold the premise of sustainable results if it does not take into account the inherently political and complex realities of the environment in which it evolves" (Ibid; 3). Consequently, UNDP proposes three levels of capacity, the *enabling environment* (policies, legislation, power relations and social norms), the *organizational level* (systems, procedures and institutional framework) and the *individual level* (experience, knowledge, technical skills), and five steps of the capacity development process. Differently from previous literature, UNDP concludes by suggesting four capacity development strategies which namely are: institutional reform and incentive mechanisms; leadership development; education, training and learning; accountability and voice mechanisms. But what is capacity development then about? What and who does it involve? And how is it measured? As much as there is no unique definition for capacity development, no agreement has been reached on what capacity development is exactly about, what are the core issues it is centred on and how it can be operationalized and evaluated. During the 1990s capacity development became the core issue of technical cooperation programmes (Lusthaus, 1999). This concept changed over time due to an evolving understanding of development theories, approaches and evolutions in the political philosophies in parallel with the lack of effectiveness of technical assistance programs (Sagar, 2000). Over the past four decades, development thinking involved in facts more and more complementary ideas to the mere technical evolution including aspects such as human resources development, institutional strengthening and so on (Lusthaus, 1999). Capacity concept is therefore nowadays an extremely elastic definition, a sort of an "umbrella concept" (Ibid; 2) linking approaches that have been previously isolated to new more coherent and comprehensive and long-term oriented strategies. For Bolger (2000), capacity development is mainly about change

and transformation. He sets capacity development *objectives* (enhance, or more effectively utilize, skills, abilities and resources; strengthen understandings and relationships; address issues of values, attitudes, motivations and conditions in order to support sustainable development), *principles* (broad-based participation and a locally-driven agenda; building on local capacities; ongoing learning and adaptation; long-term investments; integration of activities at various levels to address complex problems), *levels* (individual; organizational; network/sectoral; the enabling environment) and even *strategies* (eliminating old or inappropriate capacity; making better use of existing capacity; building up or strengthening existing capacity; providing space for innovation or creative use of capacity; creating new capacity) (Ibid). According to Mizrahi capacity development involves "a complex process of learning, adaptation and attitudinal change at the individual, organizational, and institutional level. Benchmarks used to assess degrees of capacity are often based on subjective evaluation and partial or incomplete information" (2004; 4). Morgan considers institutional aspects as the core factor for capacity development: "efforts and capacity development need to be seen as part of the dynamics of bigger organizational and human systems" (1998; 3). Considering that institutions are human-made constraints whose purpose is to regulate human behaviour itself, he envisages a distinction between *formal* (e.g. rules, laws, constitutions) and *informal* (e.g. norms of behaviour, conventions markets and self-imposed codes of conduct) capacities (Morgan, 1998). Institutional aspects are of core importance for Willems & Baumert (2003) too who distinguish between three different levels of institutional capacity: (a) the *individual* level (skills and performance), (b) the *organization* level (management capacity), and (c) the *broader context* level (networking capacity). Differently from Morgan, Willems & Baumert provide us with a satisfactory definition of institutions which are intended as "not only discrete organizations (e.g. government agencies), but also, more generally, sets of rules, processes or practices that prescribe behavioural roles for actors, constrain activity, and shape expectations. Institutions are durable; they are sources of authority (formal or informal) that structure repeated interactions of individuals, companies, civil society groups, governments and other entities. Thus, institutional capacity represents a broader 'enabling environment' which forms the basis upon which individuals and organizations interact" (Ibid; 11). The lack of operationalization and assessment frameworks is widely acknowledged: "[t]he literature on capacity and capacity enhancement is extensive but mostly vague when it comes to operationalization of concepts, identification of measurement tools, and definition of indicators. While a consensus exists that capacity involves something more than the sum total of individual capacities, and that capacity enhancement projects therefore need to consider the broader, institutional and organizational framework in which individual operate, there is very little agreement on how to assess, monitor an measure capacity and capacity enhancement in the absence of a specific developmental or sectoral objectives" (Mizrahi, 2004; 7). Similarly, Van Loon (2010) complains that while on the one hand there are several approaches to capacity development, on the other hand these approaches lack a comprehensive operationalization and they miss to consider the relational perspective of the capacities. The importance of capacity assessment is justified by the fact that an assessment of the current capacities of a country is fundamental "to determine the extent of the capacity gap between current capacity and the capacity required for specific policy options" (Willems & Baumert, 2003; 42) and can therefore provide this same country with "useful guidance in

selecting the next step that are most appropriate to its national circumstances" (Ibid; 8). Essential, capacity assessment is country-specific and has to be undertaken at a national level. Not being able to propose a unique framework, they consequently suggest interesting dimensions relevant for discussing institutional capacities:

- "the political economy, i.e. the way governments are selected, monitored and replaced, as well as the way political institutions take decisions on policy issues, has major implications on governance. Political instability or a weak government usually makes it very difficult for a country to implement sound policies" (Ibid; 4);

- "the ability of citizens, groups and associations to make their voice heard, monitor government's action and participate in the decision making processes is increasingly seen as essential for good governance" (Ibid);

- "the quality of the civil service and its overall ability to implement sound and coherent policies forms the background for the success of any policy" (Ibid);

- "the rule of the law refers to the respect of the citizens for the rules of society and, more specifically, to the effectiveness of the judiciary, the enforceability of contracts, the incidence of crime, as well as the control of the corruption" (Ibid).

Here more, there less explicitly, capacity development it is often intended as an issue concerning "southern" developing countries. Authors dealing with capacity development in facts gave for granted, at least till recently, that capacity development deals with a flow of knowledge from North to South (Sagar, 2000). The will for development of poorer regions is associated to further environmental harm due to industrial advance and it is therefore duty of more developed countries to intervene with their technical help. Being this research not the most suitable place to discuss the definition of developing countries, let it be sufficient to state that when environmental concerns are in place, capacity development cannot be considered a matter of developed or developing countries any more. If it is on the one hand true that more developed countries possess technologies which allow them to achieve more sustainable production processes, it is also true on the other hand that these very same countries are responsible for the vast majority of environmental damage and resources exploitation. According to Sagar, "[t]he continuing, and often intensifying, need to move towards sustainable production systems - industrial, agricultural, energy, etc. - to reduce stresses on the environment, as well as the need to mitigate and/or adapt to the social, economic and ecological impacts associated with environmental degradation, poses a significant challenge to developing countries. At the same time, these countries are often hampered in their attempts to tackle the environment issues owing to constraints in technical, organizational, and institutional capacities, and at a more fundamental level, paucity in financial and human resources" (Ibid; 383). Still, "the capacity to manage the environment within *any* country can be thought of as requiring the capability to evaluate the condition of the environment and natural resources, the capability to assess the human activities that are driving any changes in the state of the environment, and the capability to design and implement appropriate societal responses" (Ibid; 385). If "the technological and environmental trajectory of a firm depends not only on its internal characteristics but also on the structure of the system of which it is a part and the linkages between the firm and other organizations"(Ibid; 396), technological advance alone is therefore not the only capacity

required for sound environmental performances. The focus has to broaden beyond the industrial production system and has to include consumption aspects too: a cleaner production is in fact achieved by applying knowledge to existing production technology, developing new technologies, changing existing products and creating new ones, by changing policies, producers and institutions in order to ensure that individuals perceive positive incentives and receive rewards for taking preventive actions (Ibid). As much as developing and developed countries both face environmental problems, who more who less, similarly, they might experience institutional and political problems (e.g. corruption, lack of democracy, lack of collective action) for which the development of certain capacities is required independently from their economic status (Bolger, 2000). Building social capital is for instance of key importance for "creating the sense of mutually beneficial collective action that seems so important in activities such as community development, inter-ministerial coordination and organizational development" (Morgan, 1998; 10). Therefore, even more economically advanced countries might have "specific capacity barriers that prevent them from taking ambitious forms of action... Thus, more detailed capacity assessments could provide a clearer picture of the kind of future options a country can afford... True, there is a danger in international discussions that countries use capacity constraints as a reason not to act, while in fact, they may simply be unwilling to act" (Willems and Baumert, 2003; 7). After all, the fact that emerging consensus that capacity development calls for long-term, it contributes to sustainable social and economic development, and is demand driven (Lusthaus, 1999), does not include any clue to let us think that more advanced countries should be included into capacity development programs not only as subjects, but as objects too.

4.2 Analytical framework

As discussed in the previous section, the concepts of capacity and capacity development can differ to various degrees from study to study according to the focus, understandings, scope and proclivity of the authors. Even though it is not duty of this work to provide a definition of capacity development, it is however indeed necessary to draw the framework that will be used for this research. The most updated and comprehensive framework appears to be the one suggested by the UNDP since it provides a systemic approach of three interrelated levels of capacity, inter-complementary and combined in an integrated system. The *enabling environment* level implies that neither individuals nor organizations function in isolation. They have to be seen, in facts, as part of a broader system, which can either facilitate or hampers their existence and development. The understanding of this level of capacity is considered fundamental since it includes "the policies, legislation, power relations and social norms, all of which govern the mandates, priorities, modes of operation and civic engagement across different parts of society" (UNDP, 2008; 6). The *organizational level* comprises the policies, procedures and frameworks that allow an organization to operate and deliver on its mandate and that enable individual capacities to connect and achieve goals" (UNDP, 2008; 6). At the *individual level*, the UNDP refers to capacities as the "skills, experience and knowledge that are vested in a person. Each and every person is endowed with a

mix of capacities that allow us to perform, whether at home, at work or in society at large. Some of these are acquired through formal training and education, others through learning-by-doing" (UNDP, 2008; 6).
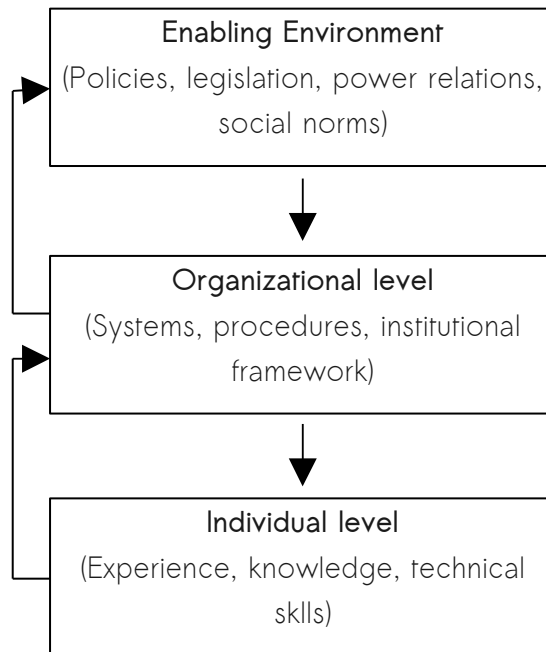
Figure 4. The systemic approach of the three levels of capacity (Source: UNDP, 2008).

The basic assumption of this research is that as a solid waste management issue, the introduction of a deposit-refund based refillable glass bottles system requires that all these three capacity levels are developed (Taylor, 2000). The application of a refillable system calls for certain requirements that can be derived from the existing literature:

- favourable political and social conditions for the creation and the implementation of the policy (Crosby & Taylor, 1982; Godush, 2000; Willems & Baumert, 2003; González-Torre, et al., 2004; Cox & Giorgi, 2010);
- reverse logistics settings, the decision upon a deposit quota and standard models of bottles (Kent Moore & Scott, 1983; Kroon & Vrijens, 1995; Dowlatshahi, 2000; González-Torre, et al., 2004; Grimes-Casey et al., 2007);
- purchase of cleaning and collection machinery, additional employment required, and settings of infrastructures for the storage of empties (Kent Moore & Scott, 1983; Lesser & Madhavan, 1986).

According to the description of the levels of capacity, each of these requirements can be grouped within a level of capacity as follows:

Level of capacity	Requirement
Enabling environment	• Policy creation and legal agreements • Social norms

Organizational level	• Logistics
	• Adaptation of industry (standardization of bottles)
	• Market regulation (deposit quota)
Individual level	• Cleaning and collection machinery
	• Setting of infrastructures (storage of empties)
	• Additional employment

If capacity refers to the "organizational and technical abilities, relationships and values that enable countries, organizations, groups and individuals at any level of society to carry out functions and achieve and achieve their development objectives over time" (Morgan, 1998; 2), the requirements for the introduction of a refillable system can be therefore intended as capacities or, better, as *sub-capacities*. Given the impossibility of matching precisely the three levels of capacity to the requirements (sub-capacities) due to the limitations of the topic to waste management issues while the levels of capacity can be applied to several fields, the analytical framework needs some adjustments. From now onwards this research will thus refer to the enabling environment as *institutional* capacity, being it intended as an established set of social norms and features. While it will be referred to the organizational level as simply *organizational* capacity, the individual level will be intended as *economic* capacity since no other specific capacity at the individual has been found out in the literature except for economic-related capacities. Therefore, the analytical framework is adapted as follows:

Level of capacity	Capacity	Sub-capacity
Enabling environment	*Institutional*	• Policy creation and legal agreements
		• Social norms
Organizational level	*Organizational*	• Logistics
		• Adaptation of industry (standardization of bottles)
		• Market regulation (deposit quota)
Individual level	*Economic*	• Cleaning and collection machinery
		• Setting of infrastructures (storage of empties)
		• Additional employment

In accordance with the definition of the three capacities described above and given that this research aims at providing guidelines for the introduction of a refillable system in Italy, the research question is formulated as follows:

> *Which institutional, organizational and economic capacities are needed for the implementation of a refillable glass bottles system in Italy and how can such system be introduced successfully?*

4.3 Factors influencing capacity development: a hypothesis

The mere individuation of the capacities that are needed for the functioning of a refillable system cannot be sufficient for a qualitative analysis. Within a capacity development process there are in facts a number of factors that are believed to influence the development of the capacities of a country and therefore the outcome of its policies. As discussed in the first section of this chapter, there can be specific capacity barriers even for more economically advanced countries which might prevent them from taking action (Willems & Baumert, 2003). It is believed here that such factors can be divided into two groups, namely *external* and *internal* factors. External factors are intended here as those factors external to a country that play a role on policy decision making processes. For the sake of this research I will refer to the main European policies on waste and packaging waste 94/62/EC and, specifically to its lack of concrete examples provision due to difficulties in finding a good balance between overall environmental objectives, free trade within single markets and state sovereignties (Bailey, 1999). Internal factors are instead intended as those country-specific factors that play a role in the capacity development of a single country (Willems & Baumert, 2003). External and internal factors are here therefore intended as potential hindering factors for the overall capacity development of a certain country.

External factors. The fact that the *94/62/EC* European Directive on Waste and Packaging Waste provides a hierarchy and sets targets but it does not specify how these targets have to be met, is likely to play a role in the policy making of an EU member country. If on the one hand the Directive leaves autonomy to individual countries in determining the methods to undertake in order to honour the targets, on the other hand the lack of concrete examples might imply a slow or even incorrect policy development in the recipient countries (Salhofer et al., 2008). Still, it seems very difficult to hold a clear position on whether such 'flexibility' is beneficial or not since there are desires from the European Commmision to achieve particularly demanding tasks (targets) and integrate environmental considerations in national economies on the one hand, and the attention to avoid, unjustifiable intrusions in Member States sovereignty and in single markets on the other (Golub, 1996; Bailey, 1999). The Directive states that "in order to comply with the objectives of this Directive, and move towards a European recycling society with a high level of resource efficiency, Member States shall take the necessary measures designed to achieve the following targets: (a) by 2020, the preparing for re-use and the recycling of waste materials such as at least paper, metal, plastic and glass from households and possibly from other origins as far as these waste streams are similar to waste from households, shall be increased to a minimum of overall 50 % by weight; (b) by 2020, the preparing for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04 in the list of waste shall be increased to a minimum of 70 % by weight" (Directive 2008/98/EC; L 3132/13). If it is true that some waste prevention examples are provided in Annex IV, it is also true that these examples are rather vague and they do not provide any indication about specific good practice models. The Directive states that the measures that can affect the framework conditions related to the generation of waste are: "(1) the use of planning

measures, or other economic instruments promoting the efficient use of resources; (2) the promotion of research and development into the area of achieving cleaner and less wasteful products and technologies and the dissemination and use of the results of such research and development; (3) the development of effective and meaningful indicators of the environmental pressures associated with the generation of waste aimed at contributing to the prevention of waste generation at all levels, from product comparisons at Community level through action by local authorities to national measures" (Directive 2008/98/EC; L 3132/27). Moreover, the measures suggested to affect the consumption phase are: "(11) economic instruments such as incentives for clean purchases or the institution of an obligatory payment by consumers for a given article or element of packaging that would otherwise be provided free of charge; (12) The use of awareness campaigns and information provision directed at the general public or a specific set of consumers" (Directive 2008/98/EC; L 3132/27). It is therefore understandable that countries which experienced or are experiencing difficulties in waste management might not only consider these instructions misleading, vague or even confusing, but they might also take advantage of the weaknesses of the EU policies (e.g. diverging interpretations) to avoid compliance and obligations (Willems & Baumert, 2003; Vander Beken & Balcaen, 2006).

Internal factors. Given that internal factors are considered to be country-specific, it is not possible to draw an exact list of these factors. There are however several general aspects which might represent either opportunities or barriers for the development of certain capacities (UNDP, 2008). For the sake of this research, internal factors will include *culture and attitude*, *capital* and *politics*. 'Culture and attitude' are intended as aspects such as sense of community, inclination to commit crime, awareness and perception of environmental issues, consumption patterns and so on (ADEME, 2009). With 'capital' it is referred here to the economic possibilities, the general economic welfare and therefore the investment capacities of a country. 'Politics' include aspects such as governance abilities, environmental policy approaches, democracy level, lobby, representation and influence of green parties in policy making processes and even crime opportunities provided by legislation (Vander Beken & Balcaen, 2006).

External factors	Internal factors
• Shape of the Directive 94/62/EC	• Culture and attitude
	• Capital
	• Politics

Table 5. Summary of the hypothesised external and internal factors

4.4 Conclusion

Throughout the literature, the definitions given of capacity and capacity development seem to be rather broad and open. On the one hand these concepts are almost exclusively applied to developing countries, while on the other hand the very same openness of definition allow

researchers to apply the concept of capacity development to broader spectra. Capacity and capacity development are considered fundamental issues within policy development frameworks since their operationalization enable researchers to understand both current and future possibilities of a certain country in a certain moment of time. The combination of the framework provided by the UNDP and the derivation of the requirements necessary for the functioning of refillable systems from existing literature contributed to the identification of the required institutional, organizational and economic capacities. Still, it cannot be ignored that the development of capacities strictly depends on country-specific aspects such as capital, politics and culture (internal factors) as much as on international aspects such as common policies and frameworks (external factors). The development of those capacities that are needed for the adoption of a refillable glass bottles system in Italy therefore strictly depends on to what extents internal and external factors represent opportunities or barriers. While this chapter helped identifying that the capacities needed for the introduction of a refillable system can be divided in institutional, organizational and economic, the following chapter introduces the methodology used to find out to what extents these capacities are developed.

Chapter V

Methodology

Since a capacity study on the introduction of a refillable glass bottles system or any other packaging reuse deposit scheme in Italy has never been carried out before nor have specific guidelines ever been developed yet, this research falls in the design-oriented research category. While the specific capacities needed for the introduction of a refillable system have been derived in the previous chapter (institutional, organizational and economic), purpose of this section is to explain how the search to find out to what extent such capacities are developed has been undertaken. On-the-field interviews have been selected for the empirical collection of data and the selection of the interviewees is the result of both a stakeholder analysis based on the CONAI framework and the need for information from additional expertise. This chapter addresses the sub-question 'How can the search for the capacities be pursued?'.

5.1 A design-oriented research

Research projects are divided by Verschuren and Doorewaard (2005) into two groups, namely theory-oriented and practice-oriented research. While *theory-oriented* research is about "solving a problem encountered in the theory-building process" (Ibid; 33), *practice-oriented* research is about "intervention in order to change an existing practical situation" (Ibid; 36).
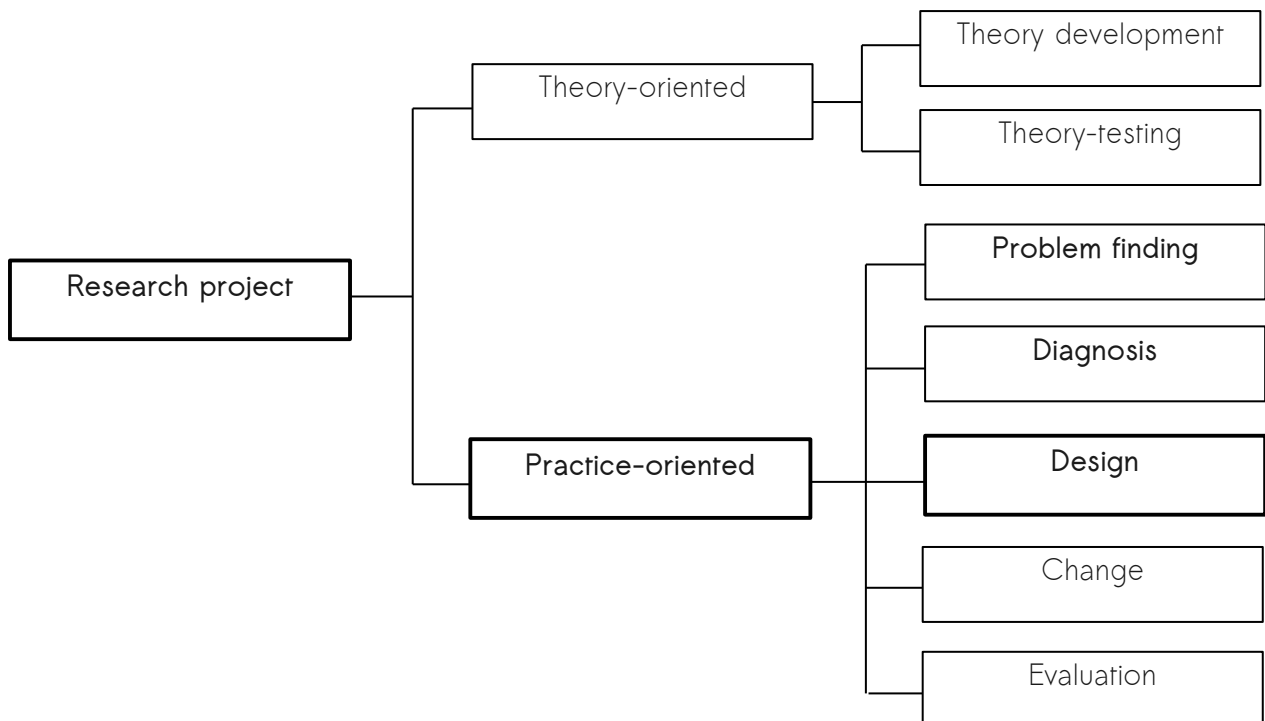
Figure 5. Types of research project and positioning of this research within practice oriented options (Source: Verschuren & Doorenwaard, 2005; 33).

Given that this research deals with the problem of how can a refillable system be introduced in Italy, it belongs to the practice-oriented research tradition. Introducing a refillable system in Italy is in facts intended as an intervention (a waste reduction measure) to change a situation (the lack of reuse measures). Furthermore, practice-oriented research can be divided in five stages of research (so-called "intervention cycle"), which namely are: a) problem-finding research, b) diagnostic research, c) design-oriented research, d) intervention-oriented research and e) evaluation research. If the purpose of this research is to provide guidelines for the introduction of a refillable system, this work therefore belongs to the *design-oriented* research stage. Still, Verschuren and Doorenwaard (Ibid; 40) suggest that in order to carry out a design-oriented research two conditions have to be met: a) the problem needs to be properly identified and defined and b) the problem to be solved must be diagnosed. These two conditions are justified by the idea that knowledge on the roots of the development of a specific problem is an important link to the search for solutions. According to this, research is conducted not only to find out to what extents institutional, organizational and economic capacities are developed for the introduction of a refillable system in Italy, but also to find out the reasons why a refillable system has never been adopted. These points are covered in Chapter VI and they offer the base for the development of the design-oriented part addressed in Chapter VII.

5.2 Data collection: modality and structure

Given that a feasibility study on the introduction of a deposit-refund based refillable glass bottles system in Italy has never been undertaken before, and given the consequent lack of literature on the issue, on-the-field interviews have been considered to be the most suitable methodology for empirical qualitative data collection. The advantages of personal interviews can be summarized in the following points: a) the potential to overcome poor response of questionnaire surveys, b) it is well suited for the exploration of values, attitudes, motives and beliefs, c) provides the opportunity to evaluate the answers' validity by observing non-verbal indicators, d) it ensures that all answers are answered by each interviewee and therefore facilitates comparison and e) it ensures that interviewee does not receive any interference while formulating answers (Bariball & While, 1994). The type of interview chosen is the semi-structured interview and it follows the following structure:

- *Stage 1*: 'breaking the ice' questions: (self-introduction of the interviewer and work presentation, self-introduction of the interviewee);
- *Stage 2*: easy 'warming-up' questions (from 1 to 3);
- *Stage 3*: core questions (from 4 to 8);
- *Stage 4*: 'cooling off' questions (from 9 to 13).

Given that semi-structured interviews are "well suited for the exploration of the perceptions and opinions of respondents regarding complex and sometimes sensitive issues and enable probing for more information and clarification of answers" (Barriball & While, 1994; 330), such type of interview

is considered to fit well with the scope of this research. Specifically, the core questions aim at getting insights on the following issues:

Question	Issue
4	To what extent external factors play a role in capacity development
5	To what extent internal factors play a role in capacity development
6	To what extent institutional capacities are developed for the adoption of a refillable system
7	To what extent organizational capacities are developed for the adoption of a refillable system
8	To what extent economic capacities are developed for the adoption of a refillable system

Full questionnaire is reported in Appendix 1. A shortened version of the questionnaire has been created for those cases where it has not been possible to obtain extensive interviews for time reasons (see Appendix 2).

5.3 Stakeholders and interviewees selection

The minimization of municipal solid waste involves the decision of governments and institutions, private businesses, product manufacturers and householders (Taylor, 2000). Therefore, refillable systems call for the involvement of several actors in order for the system to work properly. Given that, as discussed before, the introduction of a policy on waste requires a comprehensive systems approach, the selection of the interviewees is based on a stakeholder analysis. According to Brugha & Varvasovszky (2000), stakeholder analysis is a tool that can be used to inform project planning, implementation or evaluation of certain policies. A stakeholders analysis, or approach, generates knowledge that helps understanding interests, behaviour, agendas, interrelations, resources and influence that the actors involved in a decision-making process bring or can bring and it is therefore useful to understand the policy context and assess the feasibility of future policy directions (Ibid). Most importantly, a stakeholder analysis helps focusing on the interrelation of the players involved, whether active or passive, and on their influence on a certain policy with the broader socio, political and economic context: a stakeholders approach "reflect the realization that the interests and influence of these individuals or groups, both within and outside the organization, need to be taken into consideration in evaluating threats and opportunities for change, in strategic planning and selection of strategic options, and in successfully implementing and managing change"(Ibid). The table below is divided in three columns. The *framework* column is based on the packaging waste stakeholder framework provided by CONAI and thus helps individuating all the actors involved in the packaging die. Stakeholders are derived through the application of this framework to the Italian reality. The *interviewee* column specifies which person has been interviewed. The selection of the stakeholders is based on the question "in case a policy on deposit-refund system on glass bottles

was introduced in Italy, which actors would be involved?".

Framework (CONAI)	Stakeholder	Interviewee
Who creates the law	• Parliament • Legambiente	• Francesco Ferrante • Nunzio Cirino Groccia
Who implements the law	• CONAI (national level) • Provinces & Municipality (local level)	• Amanda Fuso Nerini, Dr. Fontana • Emanuele Burgin
Who produces the packaging	• Assovetro (Glass producers confederation)	• Giorgio De Giovanni
Who fills the packaging	• Heineken Italia Group (beer producer)	• Alessandro Merlo
Who distributes the good	• COOP Italia (national retailer) • La Tana del Luppolo (local retailer)	• Ulisse Pedretti • Marco Degli Esposti
Who consumes the good	• Unione Nazionale Consumatori (National Association of Consumers)	• Francesco Greco
Who treats the waste	• Assorecuperi	• Marco Calderazzo

Table 6. Selection of the interviewees according to the CONAI's packaging waste stakeholder framework.

Since a refillable glass bottles system is not in use in Italy, the selection of the stakeholders resulted in a mix of 'real' and 'virtual' stakeholders. 'Real' stakeholders are those whose role would be in any case fixed due to established institutional position and they are not assumed to change over time (even if their representatives might change but the institution remains. They namely are:

• the Parliament;
• the CONAI;
• Regions and Municipalities.

The remaining 'virtual' stakeholders have been therefore selected on a hypothetical basis but still with a comprehensive criteria according to their broad representation or coverage of the Italian panorama. In the specific case:

• Legambiente: environmental NGO;
• Assovetro: the national association of glass producers;
• Assorecuperi: the national association of waste dealers;
• Unione Nazionale Consumatori: the National Consumers Association representing the consumer's voice;
• Heineken Italia Group: beer producer which includes several brands (Heineken, Moretti, Ichnusa, Dreher) with the largest share in the Italian beer market;
• COOP Italia: one of the largest national retailer;
• La Tana del Luppolo: small beer retailer.

It has to be specified however that Francesco Ferrante (Parliament) and Nunzio Cirino Groccia (Legambiente) cannot be considered proper 'virtual' stakeholder due to their current involvement in a law proposal on the introduction of a refillable system (Mazzocchi & Gava, 2009). Even though the status of the proposal is currently unclear, these two actors have been anyway considered of key importance. All the other interviewees have been chosen as representatives of the respective institution or company. Lastly, the need for an as much comprehensive as possible picture and the intention to reduce the lack of validity of data collection at minimum led to the selection of additional interviewees whose experiences and knowledge have been perceived to contribute to this research. They namely are:

- Edoardo Ronchi: former Minister of the Environment, creator of the 1997 Ronchi Decree on waste and packaging waste and current president of the Fondazione per lo Sviluppo Sostenibile ISSI (Foundation for Sustainable Development);
- Mario Diani: professor of Sociology at the University of Trento with expertise in social environmental movements;
- Rodolfo Lewanski: professor and course leader of Environmental Politics course at the University of Bologna;
- Joachim Quoden: Managing Director of Pro Europe (Packaging Recovery Organization Europe), Brussels.

Chapter VI

A refillable system for Italy: visions, barriers, tools

The data collected are here first grouped according to the main issues discussed during the interviews and then summarized in the concluding paragraph sorted by capacities (institutional, organizational and economic) and factors (external and internal). First, some general perceptions and understandings of the refillable system are presented. Surprisingly, it has been found that a packaging reuse scheme is already in use within the HORECA circuit, even though without compulsory adhesion. Second, the feasibility of the introduction of a reuse deposit scheme is discussed according to the features of the Italian packaging waste system. The CONAI is acknowledged for its effectiveness in a market dominated by disposable packaging, but still there seem to be no reasons for not including reuse deposit schemes. Following, further discussion on those issues that are considered to be barriers preventing the introduction of reuse deposit schemes is developed. These issues involve several internal problems including, amongst others, the lack of environmental care and long-term planning of the political class. Lastly, some immediate conclusions are derived form the results. This chapter is the sum of the opinions of the stakeholders interviewed and addresses the sub-question 'To what extent institutional, organizational and economic capacities are developed and to what extent external and internal factors play a role in the development of these capacities?'.

6.1 Insights and perceptions of refillable systems

Stating that Italy never adopted reuse deposit schemes would not correspond to reality. In facts, to be precise, a refillable system within milk and wine distribution channels has been in use several years ago. When more and more disposable products such as PET and Tetra Pack entered the national market, such system slowly started to disappear. Big distribution channels started following the new economic trends and the purchase of products sold in glass packaging dramatically dropped. To be even more precise, it has been surprisingly found out that a refillable system is already in use within the HORECA (Hotels-Restaurant-Catering) sector. However, such finding does not undermine the validity of this study since, according to the data provided, the reuse of glass bottles made within this sector only involves the business-to-business stream, accounting for roughly one tenth of the total amount of glass bottles put on the market and without being compulsory. In addition, the idea of the (re)introduction of a refillable system in Italy seems to be already 'in the air'. Recently, Italy assisted in facts to the participation of its major environmental NGO, Legambiente, in a working group on the re-introduction of the refillable glass bottles system. This working group has been brought up with the cooperation of FIPE (Federazione Italiana Pubblici Esercenti), ITALGROB (association of drinks distributors and link between producers and the HORECA sector), some producers (S. Pellegrino mineral water, Pago juices and Peroni beer) experimenting the system through a pilot study in Conegliano Veneto. Purpose of this pilot was to back up with evidence the law proposal "Vetro Indietro" (Mazzocchi & Gava, 2009). Notwithstanding positive results, the

project slowed down due to economic crisis reasons and thus a missing monetary support (no reduction on waste taxes has been offered as compensation), not to mention changing political situations. The original idea consisted of conducting other pilots in different areas (Conegliano Veneto is a very efficient waste recycling town in the North, so it cannot be considered statistically significant per se) such as Rome surroundings, Ancona and Salerno in order to test the system in different areas of the country.

For what concerns its applicability, it is widely known that a refillable system cannot be extended to every type of beverage container. Due to its specific properties, a refillable bottles system can be sustained only if applied to glass containers. Glass possesses a unique cultural value which lies in its practicality: glass packaging is the only type of packaging that can be sterilized and directly reused. In addition, apart from being more easily traceable and manageable in the waste stream, glass is the only 100% recyclable material. The recycling of glass is a way not only to save natural resources but also energetic efforts that are normally required for the production of its raw components: silicon, calcium carbonate and soda (while glass melts at 1000°C, raw materials need higher melting temperatures). Given its qualities and given the effort to produce it, high investments have been directed by glass producers towards recycling awareness campaigns. The problems that glass recycling procedures encounter are in facts several and the requirements for an effective recycling cycle are: a) a mono-material separate collection (separate collection of glass from other materials) in order to avoid bottles imperfections and damages due to possible presence of particles of any other material and b) a mono-colour separate collection in order to be able to recreate the original colours, (otherwise it can be obtained green glass). The possibility of introducing a refillable glass bottles system appeared to be more than welcome by glass producers. The first reason and more obvious reason is in line with the motivations behind glass recycling, that is to say energy and material savings. A second reason is that the adoption of a refillable glass bottles would not decrease the total production of glass since glass production is a rather vast sector which includes a vast range of goods from food pots to windows and fine art pieces. Rather contrarily, a refillable system is likely to enhance the production of more durable bottles. With regard to the quality of their products, glass producers work under constant pressure constrained between two problems. On the one hand, high quality products are required by consumers (e.g. producers can be sued in case of personal damage due to a scarce quality of the product) and by fillers (bottling takes place at industrial speeds and the quality of glass necessarily has be extremely high to avoid tilts and slowdowns). On the other hand, a more sustainable packaging market demands for lighter options (CONAI), and therefore less durable products. At present, there is still very high differentiation within glass bottles production. The design of a bottle, in some cases even pride of the *Made in Italy* mark, is a market tool, the image itself of a certain product. Given that a system where every single producer is in charge of the pick up of its own empties, the first step for the adoption of a refillable glass bottles system would consist in avoiding packaging diversification and move towards a packaging standardization, solution which has already been taken in those countries were the refillable system. Managing refillable bottles would then imply: a) standardization of the type of bottle used, b) adaptation of existing bottling machines to the standard model (bottling happens at industrial speeds), c) investments in cleaning and sterilizing machinery and d) investments in additional

machinery for quality standard checks. Exemplary is the case of the Heineken Italia group. The famous multinational beer producer covers the vast majority of the Italian beer market by producing, apart from Heineken under license, several additional national brands: Moretti, Dreher and Ichnusa. Heineken beer only is brewed in 3 plants: Comun Nuovo (Bergamo, Lombardia), Massafra (Taranto, Puglia) and Pollein (Aosta, Valle d'Aosta). The refillable system is already in use inside the Heineken family since the Massafra plant requires by market (Southern and Sardinian) a refillable system . Given the high differences in recycling rates between North and South, it was rather unexpected to find out that a refillable system is required more in the South than in the North. Heineken group is constantly working on the reduction the weight of its products packaging, together with a standardization of its formats. Concerning the image of the product, beer brands such as for instance Dreher and Moretti underwent a restyling of their images, together with their weight reduction. Sustainability aims of the Heineken group can be better reached under present market conditions through packaging weight reduction measures instead of through the adoption of a refillable system. The Heineken's product has therefore two formats, one for the refillable system and the other one disposable. However, due to a lack of data and specific studies, it is not possible to state in percentage or quantity how many bottles are part of the business-to-business or the business-to-consumer circuit.

Prevention campaigns gained more and more importance inside another company, COOP, one of the largest national supermarket chains. For instance, not only Coop already adopted a refillable system for detergents (even though exclusively of their own brand), but also the latest COOP's campaign concerned the consumption of tap water instead of bottled mineral water in favour of a lower environmental impact. If we consider that according to COOP's R&D departments studies in Italy bottled water travels on average 600 km, travelling distance is a key factor to evaluate the ecological convenience of a refillable system; due to weight reasons the transport of glass bottles has more impact than transport of, for example, PET bottles. According to their LCA studies it has been concluded that there is environmental convenience for a refillable system on water in glass bottles only within the range of 100 km travelling distance. If a refillable system had to be set, there would be a need for a change of, first of all, consuming habits (purchase of water from the closest local source) and a balance in terms of distance between producers and consumers. In countries such as Germany and Holland a refillable system on beer bottles has been successful due to limited travelling distances and a rather even distribution of refillers and retailers (e.g. local breweries). If refillable practices are considered more convenient, emissions and costs due to transport cannot be ignored: if the distance between producers and retailers is limited, then a refillable system is more likely to be adopted. Moving the impact from packaging production to transportation, transport costs have to be in sum compared to recycling costs: both environmental and economic advantage lies in the short distance travel.

6.2 CONAI and consumption patterns: a symbiosis

Since European directives on waste and packaging waste leave freedom to countries in the means to reach the targets, Member States undertook different strategies. In the last 40 years, until about 10 years ago, Germany adopted a refillable system (DSD) especially for water and beer, and it revealed to be working successfully because: *a*) the inhabitants preferred local brands with local filling; *b*) all German beer companies and all German water companies agreed to use the same kind of bottle; *c*) it was possible to find several small specialised beverage shops trained to bring the trays with 20 bottles of beer and, respectively, 12 bottles of water to households; *d*) even the largest bottlers had many small and medium size bottling factories and e) global players started conquering large shares of the market only in recent years. The refillable system could therefore perform at its original strength (especially from an environmental point of view) because operating on very short transport distances. However, during the last ten or twenty years the picture is changing for several reasons: a) inhabitants started to like to drink the "holiday" drinks (e.g. Spanish beer, Italian and French wine and water) also at home; b) all water and beer companies started to use their own special bottles mainly for marketing reasons (refillable bottles have to be transported back to their origin and not any longer to the closest bottling plant); c) people buy now their beverages cheaper at discounters or large retailers instead of small beverage shops (discounters and supermarkets offer as alternative one way with originally no need to bring back the bottle to the shop); d) bottlers are concentrating the bottling to a few very big plants and e) global players are steering the beer and the water market. Concerning the soft drinks market, one single player is steering the market: Coca Cola. Their product is sold both in refillable and disposable containers: for refillables they changed from glass to PET as glass is performing worse from an environmental and from an economic point of view. For all these reasons refillable bottles are slowly dying in Germany, while within the beer market their presence is still strong as customers prefer to drink beer from thick glass bottles. Nevertheless, refillable quotas dropped from 90% to 75% in 5 years, water market share around 30% and soft drinks share below 30%, letting forecast that refillables will disappear or at least survive in a niche market only. While Germany adopted the DSD, Italy adopted a rather different system called CONAI (National Packaging Consortium), a market regulatory tool based on the shared responsibility principle to which all packaging and goods producers are obliged to adhere. In the quest of the reasons why Italy did not adopt a refillable glass bottles system, a first hint can be found in the foundation of the current Italian packaging waste management system itself and, more precisely, in its waste prevention measures. The CONAI system (like any other collection system for one way packaging in Europe or even in the world) is not an answer to a refillable system but a positive answer to a disposable packaging market. On the one hand a refillable packaging would be then taken out from the CONAI die, while on the other hand the risk of undermining a well-established system should not further preoccupy given that refillables would only apply to a relatively small share of the total packaging market. If the disadvantage of the German Dual System lies in its complexity due the agreements and support amongst all stakeholders (inhabitants, industry and government), the advantage of CONAI lies in the easiness for inhabitants to sort their packaging at home or very close to their homes. Compared to other solutions for one

way packaging it is very efficient, both from environmental and economical point of view, and it can be easier monitored by the federal government. If consumers normally opt for one-way packaging, a solution would be to offer a simple, practical and convenient way to get rid of the empties. Efforts are made in trying to motivate inhabitants to sort their used packaging into separate collection systems in order to foster and facilitate recycling activities. However, while it is compulsory for producers to adhere to CONAI, municipalities and regions are free to choose whether to adhere or not, meaning that waste management modalities can be freely chosen. On the one hand the CONAI is an efficient way for packaging reduction at source, while on the other hand the positive results reached by CONAI are likely to be covered by weak regional collection system: what can still be improved are the separate collection and the application of other waste reduction measures depending on consumer's choice. If the concept of producer responsibility is the driver of CONAI, consumer responsibility is still almost completely unknown. As mentioned at the beginning of this chapter, in Italy a law concerning the application and functioning of a refillable system is already existing as part of the CONAI prevention programs (art. 221 comma 3), even though not yet fully implemented. After some clarifications and deeper research, it has been found out however that a reuse deposit scheme is actually in use in the HORECA circuit only. By looking at data provided by CONAI, the reuse of glass in this circuit accounts only for roughly one tenth of the total amount of glass beverage packaging put into the market. Such a system operates basically where there is convenience both for the producer (economic convenience of refilling empties) and the reseller (fulls are brought directly to the service and empties are brought back), that is to say in the business-to-business channel. More interestingly, it has been found out that during decision making processes of the Ronchi Decree and the creation of CONAI, environmental groups already pushed for the introduction of a deposit-refund system on glass bottles. However, industry actors considered a refillable system too rigid for the time and they finally managed to lobby against its adoption. Instead, it was opted for the current compulsory consortium system, which in the end revealed anyway its positive outcomes by reaching the recycling goals fixed by EU policies. The purpose of the fore mentioned law proposal *Vetro Indietro* (Mazzocchi & Gava, 2009) is to favour a refillable system through voluntary agreements or actions. It is in fact perceived that it is not possible to introduce a compulsory refillable glass bottles system at the moment. Since producers are already subject to the CONAI environmental contribution, the proposal, in order to avoid contradictions with the current system, considered a voluntary approach more suitable.

6.3 Institutions and culture

Italy experienced a period of attention for the environment during the 1960s and the 1970s, while in recent times there is too little foreseeing. In Northern European countries environmental issues are considered shared values and they often go even beyond political views. For instance, the former German premier Helmut Kohl (1982-1989, 1990-1998), even though conservative, considered environmentally friendly laws as a way to bring Germany to higher levels of competitiveness. Recently even China seems to pay more and more attention to green politics. It seems that, even

though recently rising, environmental issues are not of interest unless they become in fashion or unless such thematics reach an emergency status in which investments have to be re-converted. By looking at the legislation, Italy seems in facts more willing to pursue effectiveness rather than undertaking taking symbolic long-term measures. After all, Italy has been often so slow in seizing external solicitations and stimuli that environmental issues took off only in the last ten-fifteen years, being this due mainly to common EU policies pressure. Separate waste collection, for instance, it is a practice which is still far from being deeply rooted. Environmental issues in general have been acquired with a clear delay with respect to other European countries due to a slower and not controlled application of the legislation. The perception that 'abroad' (mainly referring to Northern European countries) there is more sensibility for environmental issues and that, in general, "things are working better than here", is a very diffuse feeling between Italian people. Simple environmentally friendly practices such as riding bicycles instead of cars are for sure not successful and widespread in Italy as in other countries (e.g. The Netherlands). When the Dutch cycling habit is offered as example, Italians almost unanimously justify their less environmentally friendly attitudes by mentioning cultural differences. On the one hand it is indeed true that cultural differences exist, while on the other hand differences cannot be used as a justification not to act differently: tautologies are useless by definition. Considering that a refillable system was already in use years ago, it is difficult to mention the real motivation why it has been abandoned. It is quite curious that a diffuse practice has been dropped, forgotten and now trying to be re-introduced again. The 'Italian paradox' could be perfectly synthesized by the abandoning refillable system on milk bottles: a good environmentally friendly practice was in use, in parallel with other European countries or perhaps even with advance, which has been suspended due to a change in economic and political interests towards other situations.

From a sociological point of view, Italy is renowned to be an individualist country. The most plausible explanation of this lack of a sense of community homes in the general perception of Italians (again, with a risk of generalization) of being allowed to break the law when having the feeling, or the proof, that everyone else around is breaking the law. Not to mention the gap feeling between a relatively widespread economic well-being in sharp contrast with weak public services due to resources mismanagement. Last but not least, negative examples such as corruption, nepotism, favouritism, Mafia connections, power abuse and conflicts of interests come from there where completely opposite examples should come from, that is to say from the institutions. If the only organ which can put boundaries to the economic power is the political decision and nothing else, serious doubts might overtake the public opinion when it is widely known that the Italian political class is far from being detached from the economic power. Even though it is difficult not to fall into generalization, it can be said Italy is a country where social individual responsibility is translated into collective responsibility by attributing all responsibilities to political actors and public entities (the state). At least until 1970s and 1980s there was barely any culture of public action centred on individual responsibility ideas. It is on the one hand true that private interests are particularly present amongst Italians, even though on the other hand it is very difficult to explain the reasons of such cultural factor. To certain extents, differences between Italy and Northern European cultures can be attributed not only to a combination of individualism and the lack of incentives but

also to religion. The perception that the responsibility of the individual is important for the creation of collective life, is a missing aspect within the Italian culture which is deeply rooted in catholic religion. Italians generally use to put responsibilities to the community and at the same time they are less willing to act and feel as socially responsible individuals.

6.4 In search of capacities

Creativity and innovation are aspects which certainly characterise many branches of the Italian industry. Renowned and studied in the economics field are for instance the cluster formations in the Emilia-Romagna region (Northern Italy) which is home of worldwide known and exported products such as Ducati motorbikes or luxurious Ferrari cars, not to mention the incredibly successful food sector (Parma ham, lasagne, tortellini etc.). Given the advanced industrial conditions and the widespread economic well-being, interviewees considered the introduction of a refillable system as a non problematic manoeuvre. Overall, it seems that no specific capacities are missing. Still, changes are perceived to be needed in logistics, institutions, market settings and consumers' attitude.

Re-organization of logistics. Given that empties has to be returned to the fillers, the introduction of reuse deposit scheme would require a switch to 'reverse logistics'. Still, such shift is not perceived as particularly complicated since it would require rather simple re-arrangements (trucks never travel empty). Such changes are however believed to take place under natural market adjustments. When a refillable system was in use, shipping and space problems (retailers and fillers were used to deliver goods each with their own trucks) were accompanied by the lack of standardization of packaging. Solution to logistic problems can be partly solved by a standardization of bottles, therefore not requiring the delivery and the pick up by every single producer or whom even on behalf of them. At a first sigh, additional space for the storage of empties might seem necessary. This believe is rather a wrong perception since substituting empties with fulls would not produce any additional reduction of space. While this is more obvious for HORECA activities which normally possess cellars or other spaces for the storage of drinks and food, it is less obvious to consumers who might feel uncomfortable with the storage of empty bottles. Still, what would not occupy space somewhere else, would occupy space in garbage containers.

Favourable institutions and market conditions. Interviewees almost unanimously agreed that reuse deposit schemes cannot be avoided any longer given the current challenging times (reputation of Italy at the European level) and given that further economic investments are barely needed. On the one hand, if no regulation is applied to the market, the trend is very likely to favour the production side. On the other hand, if left with a broad choice, consumers are likely to keep on choosing what is more economically convenient for them. In order to favour the introduction of reuse deposit schemes there is a need of concrete measures to reduce the demand of goods sold in disposables. In Germany, when the recovery of aluminium (cans' material) could not be granted at high and convenient standards, the price of beer sold in cans has been increased in order to

prevent people from buying beer in cans: a very simple but a very efficient measure. This is to say that, especially in case of low or no demand, the government is the only organ that possesses tools to promote green initiatives, independently from political affiliations (e.g. the Veneto region, which has been governed by right parties, is one of the most successful in separate collection and recycling activities). What is needed at the moment is a solid political decision and action which is not prone to favouritism and lobbies of economic actors. It seems that in Italy the 'old' industry is still particularly influent in opposing new greener initiatives. In addition, Italy is experiencing severe difficulties in managing waste in certain areas. The only way to (re)introduce a refillable system is to keep together the economic and political fields: there is a need for a political frame able to favour economic conditions. In order to do this, a 'fiscal trigger' must be pulled, that is to say that an economic advantage for the whole die has to be found and set. The operation needed to introduce a refillable system has to be compared with recovery costs. Italy is still largely financing energy production from waste incineration, thus creating a high disadvantage for other kind of greener management options. Similarly, as far as dumping costs are less than 100 euro per tonne, there will be no economic advantage for producers in reuse practices: the more management options available, the lower the recovery costs.

Consumer's education. Together with efforts made by the government and the industry, there is a need for strong citizens' cooperation. As much as producers and fillers would be responsible for the production of durable goods and the provision of reliable containers, consumers would be the ring of the chain whose duty is the returning of empties. Needless to say, the successful functioning of refillable system largely depends on return rates. A sense of respect for common property must be therefore enhanced. In order to assure high return rates, the most widely adopted measure is the application of a fairly high deposit at the purchase of the good which is then refunded at the moment of returning the empties. Still, consumers need to be not only facilitated, for instance through the provision of collection machinery, but also steered towards the choice of the less polluting good (e.g. price mechanisms). If amongst fillers' costs the purchasing of bottles accounts for a 50-60% percent of the total cost of a single product, a refillable system would therefore imply a reduction in the final price for the consumer. Lastly, it is suggested that a refillable system could be used as a sensibilization tool for kids by leaving them the duty of return empties in exchange of keeping the deposit.

6.5 Future perspectives

General perception of the interviewees is that there are no real barriers to the introduction of a refillable system. However, if we take into account that the Green Party (Verdi) represents the 2% only in the parliament and that the current political majority showed almost an aversion and very low competencies for environmental issues, it looks rather unlikely that a law proposal will be soon approved. If on the one hand is true that the environmental paradigm still has to be deeply understood both by the ruling elite and the public, it is also true that, on the other hand, the recent

economic crisis and several other critical situations and priorities (the earthquake in Aquila area, the fall of the Gladiatori's House, the re-vote for Berlusconi's government trust, the waste management crisis in Naples' area, the frequent Mafia-related trials involving Italian politicians, recent prime minister-involving sexual scandals and so on) caused, and still cause, environmental issues to occupy the latest positions in the government's agenda. Apart from the Ronchi decree in 1997, there has been barely any other no strategic long-term waste management plan: almost every other decree and provision is the result of emergency situations. Even the last decree 152/2006 did not introduce any innovative approach. The issue of the tariff, fundamental element to induce consumer responsibility as a prize-penalty system, introduced with the Ronchi decree, still has to be fully applied since 2003: every year tariff obligations are procrastinated by new national financial plans. All current Italian green policies in general are almost completely due to EU intervention, a presence, which, instead of being seen as an opportunity and a source of inspiration, usually turns out to play the role of the 'punisher for misconducts'. We can therefore imagine how a green practice such as the one of returning empty glass bottles would appear to the eyes of the Italians: a rather far measure not only from a decision taking perspective, but also from a consumer perspective. The myth that Italian citizens do not posses environmentally friendly attitudes is rather widespread. Not only such way of thinking is usually attributed to a widespread negativity which accustomed Italians to blame their own society, their own political class and institutions. It has to be stressed also the fact that consumers received, till recently, too little attention, both in terms of health rights and demand power in a market where industry had almost total power in leading consumption patterns. Italy started to get acquainted with consumer rights issues only from 1992: until then it was not possible to imagine consumer-steered market shifts. If on the one hand is true that consumers preferred more manageable material like PET and Tetra Pack, it cannot be forgotten on the other hand that such choice has been almost completely market-driven. Italy lacked extended dialogue capacity between producers, investors, lobbies and associations, firms, political institutions and, more generally, representatives making pressure to the parliament to guarantee consumer rights to become law. Health rights, the archetype of environmental safety, became a fundamental right for the consumer only in 1998 in Italy (then ratified in the Consumer's Code in 2005). While according to some interviewees "the consumer is not ready for a refillable system", such statement sounds absolutely unacceptable to some others. As much as there are rights, there are duties: as much as there are citizens who do not show any interest in environmentally friendly behaviours, there are citizens interested in keeping environmental practice alive. In front of an enforced law, there is no valid behavioural excuse able to justify a wrong conduct. Not only. For those who are willing to pursue environmentally friendly practices which are scheduled by law but not, for instance, enforced by municipalities, it is in their right and interest to benefit from dedicated facilities. In the area of Bologna, for instance, separate waste collection takes mainly place outside the urban centre, instead of the higher density centre. If it is not true that in Italy there is not an auto-responsibility culture of the consumer, it is true that auto-responsible behaviours are not encouraged.

The deficit in the political consideration of environmental issues is not a simple matter to overcome. On the one hand it is true that several green activities gained ground in recent years, but on the other hand it still has to be understood by politicians that their political profile it is measured,

amongst other aspects, through environmental issues too. If right-winged parties show almost an aversion to environmental issues, left-winged parties do not show great enthusiasm either. More than under left-winged or right-winged political conditions, it is under social pressure conditions that a refillable system has more chances to be introduced. Even thought a large number of small firms is already pursuing green initiatives, Italy is still relying on an old conception of industry based on myopic models and short-terms solutions due to critical emergency situations (e.g. waste emergency in Campania and the government suggestions to re-open old dumpsites). For a more radical shift towards a green economy industry needs to be encouraged and steered by state initiatives. If in order to introduce a refillable system the economic convenience is the trigger, it has to be found out such an advantage can be obtained. Consumers have to be therefore informed that recovery practices are (on the immediate) more expensive for them: in this way the lack of information would be reduced. If there is economic gain, green becomes a business. According to some interviewees the core of the investigation for the introduction of a refillable system lies in the economic sustainability of such a system. If the system is backed up by an economic sustainability, there are no excuses from any point of view. There is a need for policies which support a refillable system such as increasing the prices of those products which are out of this system (cans, PET and so on). The core of the game is in the hands of businesses and political interests: if there is a sensitivity which is tied to the interests of economic lobbies, then it would be easier for politicians to start an action.

6.6 Conclusion

Before drawing the guidelines for the introduction of a refillable system in Italy it has been necessary to find out not only to what extents institutional, organizational and economic capacities are developed at the national level, but also other specific national features that might cause implementation problems. For what concerns the extent the three capacities are developed, it can be concluded the following:

Institutional capacities. At a first glance, institutional capacities seem to be the main stumbling block for the introduction of a refillable system. Since institutional capacities have been divided into two sub-capacities (see paragraph 4.3) it seems appropriate to spend some words on both. For what concerns policy creation and legal agreements, it must be acknowledged that the fact that a first law proposal (Mazzocchi & Gava, 2009) has been created and a first pilot (Legambiente) has been conducted, it seems that institutional capacities are, at least at a first glance, developed. Still, it has to be stressed that not only the law proposal reveals to be rather weak due to the suggested voluntary approach to a refillable system, but also that the pilot conducted by Legambiente cannot be considered representative for the whole country. To make it more complicated, the current government is cutting budgets for green energy and most of its policies seem to be not only short-term oriented, but also strictly dependent to personal interests and gains. For what concerns social norms and behaviours, it must be stressed that a sense of community is spread to little extents amongst Italians and more education on environmentally friendly behaviour and understandings of

common goods is therefore needed. The widespread negative opinion on government actors and public institution and the mistrust towards peer citizens is yes understandable to certain extents, but negative examples should not be taken as justifications to act irresponsibly. Even though future perspectives do not let forecast a bright future, it has not to be forgotten that several great results in the environmental area have been reached by independent organizations.

Organizational capacities. Divided in logistics, adaptation of industry and market regulation, organizational capacities are considered developed enough for the introduction of a refillable system since the minor changes required to industry to adapt to it cannot be seen as a stumbling block. To begin with, introducing reverse logistic has not been perceived by the interviewees as a particular problem, since it is believed that a switch from 'regular' logistic to reverse logistics would not require great efforts, but mainly time for adaptation. More effort would be instead required in finding an agreement on standard models of bottles. For this operation would be in facts required the cooperation of all the stakeholders in the beverage markets interested in creating a new refillable packaging market. Actors interested would be therefore required to leave aside marketing aspects such as packaging differentiation to support a more sustainable shared practice. For what concerns the decision on a deposit quota, this operation is similarly perceived as non-problematic given that it would require rather simple economic-market decision.

Economic capacities. As much as organizational capacities, the extent economic capacities (purchase of cleaning and collecting machinery; infrastructural space) are developed cannot be considered hampering. Being Italy a relatively highly industrialized country, general investments for the switch to refillable system do not represent real stumbling blocks. If it is true that a refillable system will pay back in the long-run, it cannot be ignored that the introduction of a refillable system would require initial costs. Main investments have been in facts identified in the purchase of cleaning machinery for the reuse of bottles and in the purchase of machinery for the collection of empties at stores. As much as investments for the purchase of cleaning machinery have been perceived to be not particularly high, at least for medium and large size producers, investments for the purchase of machinery for the collection of empties are believed to be non problematic for large retailers. This latter investment is furthermore believed to be even not necessary for small retailers. A last point concerns the re-setting of production line. Adopting a refillable system would in facts require not only the inclusion of washing machinery in the production chain, but also the calibration of bottling machinery according to a potential new standard model of bottle. Still, such change did not represent further concern to the interviewees.

For what concerns the external and internal factors (paragraph 4.3), it can be said that they influence the development of the national capacities to different extents. External factors (shape of the Directive 94/62/EC) did not seem to hamper the development of any capacity needed for the introduction of a refillable system. All it can be said is that, while on the one hand the freedom left by the policy on waste and packaging waste on the means to reach targets gave the opportunity to Italy to create a well functioning independent and efficient system, it did not force Italy to adapt

reuse measures. If at a first glance such issue might be considered as a major cause for the lack of national reuse practices, this however can be said for all the EU member states. Rather differently, internal factors seem to play a major role in the development of national capacities. Within internal factors, it can be concluded that culture and attitude and politics represent more serious hampering factors with respect to capital availability. If, as already mentioned before, economic investments cannot be properly considered matter of concern for a highly industrialized country the lack of widespread green attitudes amongst Italian citizens, the lack of a visionary, long-term oriented and environmentally friendly political class are very likely not to contribute to further 'green' development.

A refillable glass bottles system appeared to be generally more than welcome by the interviewees, even though its introduction has to be carefully evaluated according to what discussed in this chapter. It is a way to reduce waste and, therefore, a waste prevention measure but it is not granted that it is a more sustainable practice. If it has to be introduced, it has to be adapted to the Italians parameters of travelling distances and consumption patterns. A first motivation for the (re)introduction of a refillable system would be socio-economic, being it an option, even though not radical, to face the current economic crisis through cuts on production and recycling costs. A second motivation would be the reduction of the environmental impact through the reduction of energetic consumption related to production and recycling procedures. Some more general conclusions can be deducted from the results.

1. The fact that CONAI is a system created for a disposable packaging market, does not automatically excludes that a refillable glass bottles system can be introduced. There is still space in the beverage market for products sold in glass bottles for which a direct reuse is possible and it is more economically and environmentally convenient. CONAI fits well in a market made of disposable packaging, so perhaps it could be even said that a refillable system it is not even needed. However, we need to take into account some factors:
   - plastic has way less efficient recycling characteristics than glass;
   - plastic packaging cannot be sterilized and refilled either;
   - having a well-functioning recycling system is unlikely to stimulate the adoption of reuse practices;
   - directive 2008/98/EC requires an increase in reuse to a minimum of 50% by 2020 and the presentation of waste reduction plans by 12 December 2013.

2. The introduction of a refillable glass bottles system is not expected to decrease in a substantial manner the overall production of waste. However, it is expected not only to reduce the amount of glass sent to recycling but also to educate citizens towards a more socially responsible behaviour.

3. Provided that the refillable system is considered an ecological practice within certain specific conditions (material, distance), its introduction is tightly linked to favourable market conditions. A refillable system will be accepted only when market conditions will decide this system is economically sustainable. Still, it is indeed true that the market can be strongly influenced by political

decisions. In case social pressure is low, governments should take action and control over the market: in case the government does not undertake any action, social pressure should intervene. Clearly, in a country were conflicts of interests are so evident and worldwide known such rather radical attitudinal change appears hardly likely to take place.

4. Concerning the production side, the Italian market does not offer any example of bottle standardization at the moment. Obviously, a market with a widespread packaging diversification cannot support a refillable system and agreements must be found on the standardization of bottles. While water sold at the supermarket (business-to-consumer) is almost exclusively sold in PET bottles, water sold in glass bottles with refilling purposes is only used within the HORECA sector (business-to-business), with few exceptions of door-to-door delivery. Still, the bottles used in this channel do not present any form of standardization. Together with wine, Italy occupies the highest position in the bottled mineral water consumption ranking. The application of a refillable system would have therefore a sense if applied to (or at least it could start from) wine and mineral water glass bottles.

5. If a beverage system based on refillables counts on its own bottles, consumers have to be motivated in returning empties through a deposit-refund mechanism. Inhabitants have to be not only educated to buy many bottles at the same time in a tray and bring the empties back to the shop, but they also have to be steered towards the consumption of local brands (or at least brands which are produced locally under license) as environmental damage from the transport from other countries would be counter-productive. A simple tool favouring the purchase and consumption of drinks sold in refillables (as much as products sold in less easily recyclable materials) would be, for instance, the increase in the price of drinks sold in non refillables. In addition, a deposit-refund system on refillable bottles would imply a levy on waste taxes for citizens due to a decrease in recycling costs.

6. Given that most of the waste management policy measures undertaken are consequence of pressures due to emergency situations, there is hope for the introduction of a refillable glass bottles system. The apparently never ending waste management crisis in Campania has been severely undertaken by EU officials causing a negative reputation of Italy at the international level. Besides few breakthrough policies (e.g. the ban of plastic bags entered in force on the 1.1.2011), emergency-related and short-term solutions still seem to be daily practices. Cultural differences do not have to be used as excuses not to act and best practice examples, if successful, should be imported.

Chapter VII

Introducing a refillable system in Italy: guidelines for capacity enhancement

Being this research design-oriented, purpose of this chapter is to provide guidelines for the introduction of a refillable system in Italy. The formulation of these recommendations is based on the application of the main conclusions presented in the previous chapter to the UNDP theoretical framework for capacity development process. While the conclusions helped individuating to what extents institutional, organizational and economic capacities are developed and to what extents external and internal factors influence capacity development of Italy, the UNDP provides a solid framework for capacity enhancement. This chapter addresses the sub-question 'How can a refillable glass bottles system be introduced and stimulated?'.

7.1 Applying results to the UNDP Capacity Development Process: five steps

This research represents a first step towards the introduction of a refillable glass bottles system in Italy. According to the results presented in the previous chapter it is possible to draw some propositions in preparation to a possible institutionalization of the current law proposal on the refillable system or in the eventuality that a refillable system is sooner or later adopted. It is suggested to follow an ad-hoc capacity development procedure. Such procedure is developed from the UNDP framework model on capacity development process and adapted to the results presented in the previous chapter.
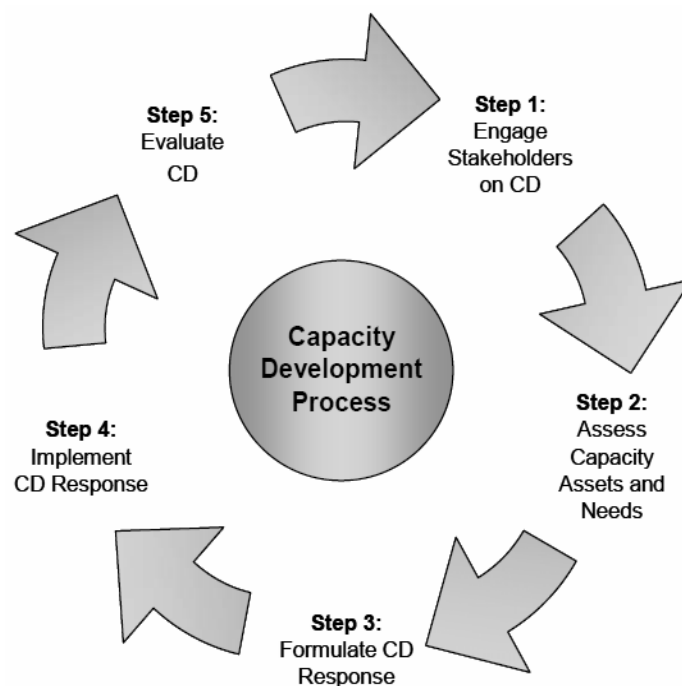

Figure 6. The Capacity Development Process (Source: UNDP, 2008; 9).

The UNDP framework is composed of five steps which are meant to indicate more a cyclical process rather than a one-off intervention (UNDP, 2008). They namely are: 1) engage stakeholders on capacity development, 2) assess capacity assets and needs, 3) formulate a capacity development response, 4) implement a capacity development response and 5) evaluate capacity development.

Step 1: Engage stakeholders on capacity development. If the first step towards capacity development is to involve all the relevant stakeholders in future decision-making and action planning, it can be said that it has already been done. The pilot conducted by Legambiente in the Conegliano Veneto area is indeed the result of a stakeholder engagement. Formally a 'working group', such process engaged, together with Legambiente, the FIPE (Italian Federation of Public Storekeepers), ITALGROB (association of drinks distributors) and some producers such as S. Pellegrino mineral water, Pago juices and Peroni beer. Still, provided that it is not possible to derive successful nation-wide implementation of a refillable system due to the restricted dimensions of this pilot, it is believed that a more deeply pondered stakeholder selection is likely to increase the success of the whole capacity development process. For a more inclusive stakeholder engagement it is suggested to consider the same framework provided by CONAI that has been used for the selection of interviewees in this research. This in turn would result in including not only distributors and refillers as in the case of the Legambiente's pilot, but also packaging producers, retailers, waste dealers, representatives of institutions (parliament, CONAI), representatives of regions and consumers associations.

Step 2: Assess capacity assets and needs. Even if the pilot launched by Legambiente showed positive results, such success cannot speak for the entire nation. On the one hand the working group revealed to be successful and showed the general feasibility of the introduction of a refillable system, while on the other hand it cannot be considered statistically significant since its feasibility reflects the capabilities of a single town only. In addition, it cannot even been said that such experiment contributed to the foundation of what are the capacities needed for the introduction of a refillable system. Even though this research did not conduct a proper capacity assessment, according to the results presented in the previous chapter it is possible to give an assessment of the status of institutional, organizational and economic capacity of Italy for the introduction of a refillable system.

a. *Institutional capacities.* An enabling environment is considered by UNPD the most important prerequisite for capacity development. The presence of corruption within governments and public institutions together with a decreasing level of democracy are rather concrete barriers for the evolution of an enabling environment (Bolger 2000). Given that both corruption and a weak democracy are in some cases even largely affecting Italian institutions (Corruption Perception Index, Nationmasters), a first step for the creation of a favourable environment must include serious measures to take over these problems. Specifically, individualist thinking and acting at the policy development stage has to be abandoned in favour of more long-term community oriented strategies. For what concerns social norms, if "[t]he building of social capital can thus

be of key importance in creating the sense of mutually beneficial collective action that seems so important in activities such as community development, inter-ministerial coordination and organizational development" (Morgan 1998, p.10) more sense of social responsibility has to be inculcated into the Italian population. If it is true that a sense of community is developed to little extents amongst Italians, strategies that put pressure on single stakeholders (consumer's responsibility) have to be enhanced. Environmental policies in general should push towards the involvement of citizens and stress the changes that their daily practice can bring to the common good.

b. *Organizational capacities.* According to the results, such capacities did not appear to be missing. For what concerns logistic issues, a development of logistics capacities is required only to a certain extent. The adoption of a refillable system is believed to have a little effect on the current distribution of goods since minor adaptation changes would be required. Furthermore, if the standardization of bottles is a central issue for the feasibility of a refillable system, an agreement must be found between drinks producer. Even though, as widely known, packaging often represents the image of a certain product, adopting few single standard models of bottles would not require any specific effort or capacity, if not the one, once again, of reaching a common agreement between beverage producers. Contrarily to what can be thought, glass producers would still, and perhaps even more, benefit from a refillable system. Glass production is not believed to decrease for several reasons. First of all, the production of glass is largely diversified and an eventual decrease in the bottle market would only partially affect the business. Second, a refillable system would require the production of more resistant bottles, therefore encouraging the production of more reliable goods. Third, a refillable system is instead believed to re-launch the image of glass. For what instead concerns the setting of a deposit quota, this issue is not believed to be of a particular concern either. If higher return rates are associated with higher deposit charges (ADEM, 2009), a suitable price must be found, a price which is neither to low nor too high, just enough to encourages people to bring back the empties to the shop. Likewise in The Netherlands, a deposit of 0.10 € on the standard 33cl beer bottle, of 0.25 € on the 75cl beer or wine bottle and of 1.5 € on the empty crate is suggested. Furthermore, given that the wine bottle market is generally excluded from reuse system, the application of a deposit-refund on wine bottles could represent a pioneer idea which perfectly fits with the consumption of wine by Italians.

c. *Economic capacities.* Even though investments do not apparently represent any particular problem, it cannot be said that unanimous agreement has been found by comparing the interviews. In facts, on the one hand, according to some interviewees investments might be consistent when speaking of needed machinery and eventual re-settings of production chains. Adapting to a refillable system would in facts require not only the purchase of cleaning machinery, if not already possessed, but also the resetting of some production stages and the re-calibration of bottling machinery on new standard bottles parameters. On the other hand, according to some others such investments are believed not to be of major concern (at least for

medium and large producers while they could be consistent for small businesses) and the extent to which production chain changes can be considered real burdens is not of any particular concern. Investments to purchase automatic glass collection machinery can be taken into consideration too. For instance, inside German and Dutch supermarkets such machines facilitate the returning of empties (both single bottles and full crates) to the consumer by their automate process. Due to its cost and the relatively and respectively lower amount of bottles handled, such machinery is not seen as suitable for small retailers. These sorts of machinery started being visible in Italian environmental fairs (e.g. *EcoMondo* 2010 in Rimini) even though created with the purpose of fostering recycling.

Step 3: Formulate capacity development response. With capacity development response UNDP refers to "an integrated set of deliberate and sequenced actions that are embedded in a programme or project to address *capacity for why?, capacity for whom?* and *capacity for what?*" (2008; 13). This step is a further development of the capacity assessment since it consists of a combination of four development strategies based on the core issues of the capacity development assessment framework. The four development strategies namely are a) Institutional Reform and Incentive Mechanisms, b) Leadership Development, c) Education, Training and Learning and d) Accountability and Voice Mechanisms and they are developed on the basis of the development challenge issues ('Core Issues') that UNDP sees usually encountered (Institutional arrangements, leadership, knowledge and accountability). These four development strategies are not only tightly interconnected but also mutually reinforcing. It is not possible to operate strictly within the burden of a single strategy and the empirical evidence collected for this research explains this clearly.

a. *Institutional Reform and Incentive Mechanisms.* Linked to the core issue Institutional Arrangements, this strategy focuses on "ensuring that the best possible institutional arrangements are in place to achieve the agreed development objectives or results" (Ibid; 17). It is not easy to link this strategy to the topic of this work given that not only specific development objectives have not been officially set yet for reaching, for instance, the reuse quotas set by the EU 2008 policy to be met in 2020. This would be however enough to state that institutional arrangements are missing. The almost complete absence of green policies and incentives calls for a need of enforcement of efforts in a more environmentally friendly development direction.

b. *Leadership Development.* If leadership is defined as the "ability to be open to, anticipate and respond to change, irrespective of whether this is internally initiated or externally imposed... to influence, inspire and motivate people, organisations and systems to achieve and in many cases go beyond their goals"(Ibid; 17-18), several improvements are urgently needed. To start with, the lack of a strong leadership, more generally intended as a strong political class, is reflected in the widely shared mistrust of Italians towards their political leaders and the low voting affluence. Being this work not the most appropriate place to discuss this issue, be it sufficient here to explain such mistrust with a constant dissatisfaction and disillusion of voters

through the last years. Dissatisfaction and disillusion have to do with the lack of transparency of the government's operate, the decreasing level of democracy (Economist Intelligence Unit 2010), the very high and confusing number of political parties (more than 30), the constantly ongoing exasperated political debate, the rather frequent involvement of politicians into corruption (Corruption Perception Index 2006), conflicts of interests, stock manipulation, mafia relationships, friendship-based contracts undertakes, scandals and trials of various levels and so on. In addition, the Italian 'ruling class' has been barely changed in the last thirty-forty years, further contributing to an increasing demand for a new leadership able to match modern thoughts (e.g. reflecting environmental issues). For what concerns the adoption of common European law, Italy showed almost in every case delay and difficulties in their application and control. Apart from very few examples (e.g. the recent ban on plastic bags entered in force on the 1st of January 2011), policy orientation appears to be incredibly short-term oriented. In addition, several policies concerning serious issues of democracy are contested for being created rather obviously to defend or favour private interests. All these issues call thus for a development of a stronger leadership development, a leadership of a new political class completely detached from personal economic interests and private gains, a more transparent political class able to reflect critically on its own operate, able to include environmental concern together with more up-to-date and more inclusive socio-economic issues.

c. *Education, Training and Learning*. Knowledge is a central issue in the adoption of this strategy. Concerning education, intended here as a transfer of knowledge in official settings such as schools and university, environmental issues can be considered a rather new concept. The relatively low presence of environmentally friendly behaviours is the result of a missing overall environmentally oriented education of the population. The great national economic development indeed contributed to some major environmental damages, but still there is a lack of official recognition, or at least a lack of a clear political position, of such damages. It has to be brought to attention, however, that several firms are already environmentally oriented and a new green business is growing. Certainly, it cannot be said that the Italian population benefits from environmentally friendly examples from the 'top'. Not only as already mentioned, the political class shows barely any interest in adopting sounds and long-term oriented environmental policies, but also negative example are constantly brought to the attention of the mass. The positive examples and results barely receive any attention by television and newspapers. In addition, it is worthy to mention that Italy suffers from a serious 'brain drain' of all those students, researchers, professors and professionals in environmental issues who are not able not only to receive proper education on the issues but also to teach or apply their knowledge.

d. *Accountability and Voice Mechanisms*. This last step addresses the capacities that "allow right holders to voice their demands and that ensure that duty bearers respond to them and that support the creation and use of appropriate mechanisms to monitor, steer and adjust

behaviour" (Ibid; 19). The lack of control and the lack of punishment of law breakers largely contribute to the lack of accountability of the Italian governments. The Campania waste crisis case is a blatant example of lack of not only monitoring but also punishment of the responsible actors. Accountability of the political has been recently even further undermined. Under the last and current Berlusconi government the political debate has been brought to extremes to the point of creating even more hate between parties. Such conduct is not only contemptible but also harmful to the population, independently from the political side it comes from.

Step 4: Implement capacity development response. Implementing a capacity development response should not be seen as a process outside the capacity development process, but "part of the overall implementation of a program or project in which the capacity development is embedded" (UNDP, 2008; 15). Monitoring is one of the basic procedures for the successful implementation of a pro-gram or project. While it is defined as a "continuing function that aims primarily to provide the man-agement and main stakeholders of an ongoing intervention with early indications of progress, or lack thereof, in the achievement of results" (UNDP, 2002; 6), its importance lies in the constant provision to the management team and connected stakeholders of progress indications by focusing on the transformation of inputs into outputs. Concerning the specific issue this research is dealing with, an ad-hoc monitoring and evaluating group or commission should be established to report the devel-opment of the process. For instance, such monitoring group could be formed by representatives of all the stakeholders involved in the process under the supervision and knowledge of the CONAI being it the organ with the largest experience in waste packaging issues, and Legambiente, being it the first actor proposing the introduction of a refillable system. The presence of all stakeholders in the monitoring process is likely to avoid that personal interests take over common interests. Reports should be provided regularly not only to the stakeholders but they should be also open to the pub-lic in order to foster the transparency of the process itself and, in case of positive outcomes, to in-ject enthusiasm into people. Still, the way to conduct an evaluation must found common agreements between the actors. While CONAI already possess reliable data collection systems, an evaluation conducted exclusively by CONAI is likely to provide quantitative data only (e.g. how many bottles have been reused, how much recycling and landfill have been avoided). Therefore, for further indic-ations on monitoring and evaluating it is suggested here to follow the instructions provided by UNDP (2002).

Step 5: Evaluate capacity development. If monitoring processes focus on the transformation of inputs into outputs, evaluation focuses on the effectiveness of these outputs, that is to say on how such outputs contribute to the achievement of the overall outcome. The purpose of evaluating capacity development is the one of assessing the performance of the management of the process. If it is true that "[p]rogress and results in capacity development are reflected by changes in performance, which can be measured in terms of improved efficiency and effectiveness... [t]hese are less easy to capture than more tangible outputs" (UNDP, 2008; 16). Even if such evaluation might serve as a fundamental tool for self-reflection of the group, the evaluation of the overall capacity development should

however be undertaken by an external and competent agency in order to pursue a more impartial assessment (e.g. national or international non-governmental offices dealing with development issues).

7.2 Conclusion

Being this research design-oriented, this chapter represents its core. Drawing guidelines for the introduction of a refillable system in Italy would have not been possible not only without finding out to what extents institutional, organizational and economic capacities are developed, but also not even without exploring those historical roots, cultural aspects and other barriers that influence the extent these capacities are developed. Even though the stakeholder engagement step has been already carried out by Legambiente for the pilot in Conegliano Veneto, it is recommended that such engagement is reconsidered and widened according to the points discussed in *Step 1* (p.57). If partial assessment of the capacities possessed and needed has been carried out in occasion of the pilot, such assessment remains unknown due to the lack of official reports. This research offers therefore a first assessment of the extent institutional, organizational and economic capacities are developed. While capacity assets and needs (*Step 2*) are directly linked to and developed from the conclusions presented in Chapter VI, the formulation of capacity development response (*Step 3*) strictly depends on the evaluations of those very same assets and needs. Given that evidence show major weaknesses within institutional capacities, stress must be put not only on the enhancement of leadership development but also on educational, training and information provision measures. If on the one hand *Steps 1*, *2* and *3* are based on evidence provided throughout this work, steps 4 and 5 have indeed a more speculative character since they have been developed from previous steps. Even if the capacity development process provided by the UNDP represents a useful tool not only for capacity enhancement, but also for the understanding of which direction major effort has to be put into, it does not have to be necessarily followed and suggestions of other alternative paths are welcome.

Chapter VIII

Discussion

This chapter is dedicated to the discussion of strengths and weakness of this research. First, the validity of the data collection methodology used is evaluated according to the methodology itself and the reliability of the information received. If one the one hand informal semi-structured face-to-face interviews allowed the collection of qualitative data, the selection of the stakeholders can be extended for further improvement.

8.1 Validity of the methodology and of the data collected

Relying on informal interviews as a data collection method revealed to be a rather useful tool for two main reasons. First of all, as already explained in chapter 3, conducting face-to-face interviews allowed a collection of data that could have not been possible in another manner due to lack of literature. Secondly, the lack of a rigid order of the questionnaire and the informal tone hold during the interviews put both the interviewees and the interviewer in comfortable positions favouring information flow, debate and even confidence. For what concerns the quality and the reliability of the information received, it is believed that high standards have been reached. The data collected are in fact the result of interviews with some of the highest representatives at the national level and they are therefore believed to be both reliable and applicable at a national level. In addition, the almost complete unanimity of agreement on certain issues (e.g. the refillable system as an ecological practice, its easiness of introduction, its feasibility, the lack of attention of current government on environmental problems, the consequent need to increase institutional capacities, the lack of facility provision to consumers, the mistrust of Italians towards institutions and so on) amongst the interviewees contributed even more to sustain the validity of the information collected.

However, some weaknesses have to be pointed out. On the one hand informal interviews allowed more open dialogues between interviewer and interviewee, together with the possibility to reply and even to talk in a friendly and confidential way. On the other hand, even thought the questions have been always formulated in the same manner, interviewees did not always directly reply to them and sometimes did not even feel confident to give an answer due to lack of knowledge on certain issues. However, the lack of direct answers to some questions does not imply that the subject of those questions has not been discussed in another part of the interview. The table below gives an overview on how many questions received a direct answer If answers are not reported in the table, this can be due to the following reasons: a) the interviewee was not able to answer the question; b) the interviewee answered indirectly the question; c) the interviewee included the answer to that question in a previous answer or broader discourse. For what concerns interviews n. 2, and n. 14, it is important to specify that while interview n. 2 did not receive specific answer to the question and the information provided has been considered irrelevant, interview n. 4 provided relevant and interesting information even though without replying directly to the questions. Due to privacy reasons, the order of the interviews does not follow neither the real order they have been

conducted, nor the interviewees selection table (chapter 3), nor any other specific order.

Interview	R	Question												
		1	2	3	4	5	6	7	8	9	10	11	12	13
1	y	x	x	o	x	x	x	x	x	x	x	x	x	x
2	n	o	o	o	o	o	o	o	o	o	o	o	o	o
3	y	x	x	x	o	x	x	x	x	x	o	o	o	o
4	y	o	o	o	x	x	x	x	x	x	o	x	x	o
5	n	o	x	x	x	o	x	x	x	o	o	o	o	o
6	y	x	x	o	x	x	o	o	o	x	o	o	o	o
7	y	o	x	x	x	x	o	o	o	o	o	o	o	o
8	y	o	o	o	o	x	o	o	o	o	o	o	o	o
9	y	o	o	o	o	x	x	x	x	o	o	o	o	o
10	**													
11	y	o	o	o	x	x	x	x	x	o	o	o	o	o
12	y	o	o	x	x	x	x	x	x	x	x	o	o	o
13	n	o	x	x	x	o	o	o	o	o	o	o	o	o
14	*	o	o	o	o	o	o	o	o	o	o	o	o	o

Table 7. Overview of direct answers only given by interviewees to the question sorted by interview ("x"= answer given; "o"= answer not given; "y"= recorded; "n"= not recorded; "*"= answered via e-mail; "***"= did not take place).

Concerning the selection of interviewees, the high position of the actors selected has already been discussed. However, a couple of remarks have to be done. The first remark concerns the selection of a representative for the policy implementation at the regional and municipal level. The person selected for the interview represents the Emilia-Romagna region only. It is understandable that, for time reasons, it was not possible to undertake interviews with the representatives of all the twenty regions. The second remark concerns the selection of the Heineken Italia Group as a representative for drink producers. Even though the Heineken Group covers a very large share of the market, such share is extended to the beer market only.

Given that the purpose of this research is to provide guidelines for the introduction of a refillable system in Italy and not to conduct a real capacity assessment, more detailed and comprehensive capacity development analysis is recommended (e.g. UNDP Capacity Assessment Framework). Given that capacity development process has been mainly created for developing countries it might be the case that there is no need to follow all the steps. It seems for the moment that the first two steps *Engage stakeholders on capacity development* and *Assess capacity assets and needs* have already been made. A stakeholder engagement has been carried out for the pilot launched by Legambiente. Still, this research provides a more comprehensive (within some limitations that will be discussed in the following paragraph) stakeholder analysis. It can be concluded that a first capacity assessment has been carried out too, even though it is suggested that for a more comprehensive analysis UNDP indications on capacity assessment methodology should be followed (see UNDP

2008). For what concerns the step *Formulate capacity development response*, this work sketched out some capacity improvement suggestions inherently connected to the material discussed throughout this research. Given that neither specific organizational nor economic capacities seem to be required, the main stumbling block that prevented and prevents the introduction of a refillable system in Italy appears to be the lack of a proper general enabling environment, with a specific reference to a lack of not only strict environmental policies but also the lack of strict control on the enforcement of the existing ones. For what concerns instead the four strategies presented, even though all these strategies are all interconnected and t is therefore difficult to distinguish, it is however possible to state that there is need for a major focus on leadership development. Lastly, the discussion of the last two steps cannot go further that limited suggestion given that a real management team has still to be set up.

8.2 Suggestions for further research

From the weaknesses discussed above, some suggestions for improvement and further studies should be taken into account:

Interview extension. In order to collect more comprehensive data, the number of interviews can be extended, accordingly, to all the representatives of the 20 Italian regions. The purpose would be to gain deeper understanding of the different implementation possibilities and problems throughout the whole country. Then, interviews could also be extended to a wider spectrum of actors in the beverage market and not only beer market actors.

Market research. A wider understanding of Italians' beverage purchasing habits is believed to help individuating how to steer the market towards favourable conditions for a refillable system. Given that Italy occupies the first position in the world rankings of wine and bottled water consumption (Nationmasters), the application of reuse deposit schemes could be extended to these two products.

LCA studies. A deeper market research on consumption habits of the Italian population should be able to open the way to more specific LCA studies concerning the distribution of all those kind of beverage products that are usually sold in glass bottles. Still, provided that (1) the vast majority of beverage and drinks is still sold in plastic bottles (e.g. water), provided that (2) a refillable system has a sense only when applied to glass bottles and provided that (3) the sustainability of a refillable system has been determined within the range of a roughly estimated one hundred kilometres, concrete LCA studies are believed to help defining its feasibility (or not) and the extent to which such system can be introduced.

Additional pilots. In the city of Conegliano Veneto a pilot experiment on refillable system has been already carried out by the working group coordinated by Legambiente. However, the fact that

Conegliano Veneto is a highly efficiently recycling city in the North of Italy undermines the validity of this pilot given that the positive results cannot be considered successful at the broader national context. Since other pilots have been programmed in the other cities of Rome, Ancona and Salerno, it is warmly suggested that these pilot studies should be still carried out to find out if the same positive results as in Conegliano Veneto can be reached or not in different areas of Italy.

Chapter IX
Conclusion

By looking back at the hypothesised external and internal factors it can be summarized that the latter play a more significant role than the former in influencing capacity development. For what concerns external factors, as much as it is true that the freedom left to Member States gave to Italy the opportunity to create a system that revealed to be effective in meeting targets, it is also true that high recycling capacities are likely to avoid the adoption of reuse schemes and encourage disposable habits. Nevertheless, the introduction of reuse deposit scheme is expected not only to help Italy with reaching the reuse targets fixed by the Directive 2008/98/EC, but also to sensitize consumer's behaviour. For what concerns internal factors, the current political situation and the lack of widespread environmentally friendly behaviours revealed to be stumbling blocks for capacity enhancement. Results showed that while economic and organizational capacities are not considered matter of particular concern, institutional capacities represent the weakest point. For what concerns social norms, Italians seem to be rather indisposed towards environmentally friendly behaviours by low community feelings. Still, it is believed that such behaviour can be rather easily changed through levering with economic incentives on consumers. If behavioural changes are more likely to be effective and uniform when steered by governmental interventions, current conditions do not offer optimal scenarios. At present, in facts, Italian government revealed to be not only almost completely detached from environmental issues but also too short-term strategy oriented. A political class that is not detached from personal economic gains and interests is very unlikely to developed capacities for the implementation of policies the whole population can benefit from. At the organizational level, it is not perceived that neither radical nor expensive changes are needed. Logistics capacities are already largely developed and the adaptation to a refillable system requires relatively simple switches to reverse logistics. For what concerns the decision upon the quota for deposit, a suitable price has to be found through further economic calculation. If the functioning of refillable systems relies on the number of empties that are returned, deposit quota must be fixed at a price which is high enough to induce returning habits into consumers. A last fundamental issue within organizational capacities that has to be developed remains however the adoption of standard models of bottles. At present, in facts, the diversification of packaging due to market reason is still very high. Still, as much as other European countries already did, an agreement between Italian producers is likely to be found. Being Italy a rather highly industrialized country, investments for the adaptation of industries to a refillable system are not perceived to be consistent. Such investments include the purchase of washing machinery, the re-calibration of bottling machinery to new standard models of bottles and eventual minor re-settings of production chains. While such costs can be relatively high for small producers, they are unlikely to affect consistently medium and large size producers. Further investments, even though not strictly necessary, are required for the purchase by large retailers of collecting machinery. No additional space is required to retailers for the storage of empties given that empty bottles easily substitute full bottles.

Even though the law proposal created by the deputies Mazzocchi and Gava and the pilot

conducted by Legambiente demonstrate a growing interest for the issue, with its step-by-step approach this research represents the very first scientific study for the introduction of a refillable system in Italy. Aim of this work was drawing specific guidelines based on to what extent institutional, organizational and economic capacities are developed. This research can be considered not only a useful 'manual' for packaging waste reduction for Italy, but also an important contribution to the existing literature by putting the foundations for future capacity studies on refillable systems. While the guidelines drawn are meant to be country specific, the theoretical framework for capacities and the differentiation between external and internal factors offer a base for similar study cases.

The current law proposal appears to be rather week since it suggests an introduction of a refillable system based on voluntary agreements. This research suggests that a stronger and clearer policy which includes a concrete action plan has to be presented. Not only voluntary aspect shall be abandoned in favour of mandatory reuse deposit schemes, while still leaving space for agreements between producers and users, but also more concrete ideas for a deposit quota and consumer education proposition have to be formulated. While a law proposal is indeed necessary, it is not believed to be sufficient itself for a radical change towards a 'reuse society'. In parallel, concrete measures have to be taken in order to discourage the use and purchase of non-refillable packaging and, more in general, materials whose recycling is complicated and expensive.

Lastly, this research suggests the application of reuse deposit schemes on wine bottles. Such suggestion is motivated not only by the high consumption of wine by the Italian population, but also by the pioneering idea that this application might represent. Still not adopted by any EU member state, the application of reuse deposit schemes on wine bottles is likely to turn in one of those breakthroughs only Italy is capable of.

Appendix I

Questionnaire

1. Are you aware of the existence of the so called 'waste hierarchy'? What do you know about it?
2. What do you know about the deposit-refund based refillable glass bottles system?
3. Would you consider the refillable glass bottles system as an environmentally friendly practice? Why?
4. Can you think of any reason why several other European countries adopted a refillable glass bottles system and why Italy did not?
5. Which barriers do you think prevented or prevent Italy from introducing a refillable glass bottles system?
6. Which *institutional* capacities do you think Italy needs and which organizational capacities do you think Italy already possesses for the introduction of a refillable glass bottles system?
7. Which *organizational* capacities do you think Italy needs and which institutional capacities do you think Italy already possesses for the introduction of a refillable glass bottles system?
8. Which *economic* capacities do you think Italy needs and which economic capacities do you think Italy already possesses for the introduction of a refillable glass bottles system?
9. Which consequences do you think the introduction of a refillable glass bottles system would have on consumers? On the environment? On the industry?
10. Do you see the introduction of a refillable glass bottles system as a peculiarity of 'green' ideas/ 'green' parties or do you think the introduction of such a system could be undertaken under any other political majority?
11. In case a new law concerning the introduction of a refillable glass bottles system is accepted, how much time do you think Italy would need to make it work properly?-
12. Given that the European directive 2008/98/EC states that European countries shall increase both preparing for reuse and recycling levels to a minimum of 50% and EU member states shall present waste prevention programmes not later than 12/12/2013, would you envisage the introduction of a refillable glass bottles system as a feasible solution for the compliance of Italy with EU requirements?
13. What would your role be if a refillable glass bottles system was introduced and how your company/group would have to adapt?

Appendix II
Questionnaire (shortened version)

1. What do you know about the deposit-refund based refillable glass bottles system?
2. Can you think of any reason why several other European countries adopted a refillable glass bottles system and why Italy did not?
3. Which barriers do you think prevented or prevent Italy from introducing a refillable glass bottles system?
4. Which *institutional* capacities do you think Italy needs and which organizational capacities do you think Italy already possess for the introduction of a refillable glass bottles system?
5. Which *organizational* capacities do you think Italy needs and which institutional capacities do you think Italy already possess for the introduction of a refillable glass bottles system?
6. Which *economic* capacities do you think Italy needs and which economic capacities do you think Italy already possess for the introduction of a refillable glass bottles system?
7. Which consequences do you think the introduction of a refillable glass bottles system would have on consumers? On the environment? On the industry?

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