SUSTAINABILITY AND THE TRAGEDY OF THE COMMONS. A NEW PERSPECTIVE

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Abstract
The "tragedy of the commons", as part of the mainstream economic theory, assumes that the selfish and rational human nature will lead to the depletion of essential resources (such as water, air, subsistence items, etc.) in the absence of well-defined property rights, formal, top-down management institutions, rules of access and exploitation. Nevertheless, evolutionary theory advances a new model of individual behaviour, based on altruism and cooperation that could lay the foundation of new types of institutions for managing the commons for the long-term benefit of the group or society. Reviewing the relevant literature that identifies instances of cooperation and successful management of the commons, the paper brings into light the essential conditions necessary for a responsible exploitation of a common resource.
Keywords:
Sustainability, tragedy of the commons, rational choice theory, evolutionary theory

Introduction

The well-known idea of the "tragedy of the commons" – meaning that in the absence of certain characteristics (such as clear property rights, solid management institutions, well-defined access and exploitation rules, etc.), a common-pool resource will be certainly placed in the middle of the confrontation between the self-interest of individuals and the collective interest of the community, eventually being depleted due to the tendency of any individual to overexploit it – is part of the mainstream economic theory. The tragedy is even greater if we take into account that most of the so-called „commons" are essential resources (such as water, air, subsistence items, etc.) that pertain to the survival of any individual, directly linked to the sustainability of a community.

Nevertheless, the human species has succeeded in managing such common resources for millennia, ensuring its survival by proving a high degree of ultra-sociality and ultra-cooperation. The current paper is a theoretical research aimed at identifying successful instances of cooperation in overcoming the inexorable tragedy of the commons, describing the essential conditions necessary for a responsible exploitation of a common resource, and ultimately finding a new model to lie at the basis of the economic theory.

The theme of the research is of great importance, given the fact that the sustainability of a community depends on an accountable use of the common resources, which is to be achieved by promoting a new model of individual, different from *homo oeconomicus*, driven by cooperation and concern for the common good. The paper will investigate the link between sustainability and the alleged self-centred human nature in order to ascertain whether the „tragedy of the commons" is inevitable when dealing with any common resource or whether such a tragedy is only generated by the promotion of a wrong model of economic man and institutions. Although theoretical, the research draws upon a large body of empirical research presented in the literature dealing with the management of the commons.

1. Theoretical framework

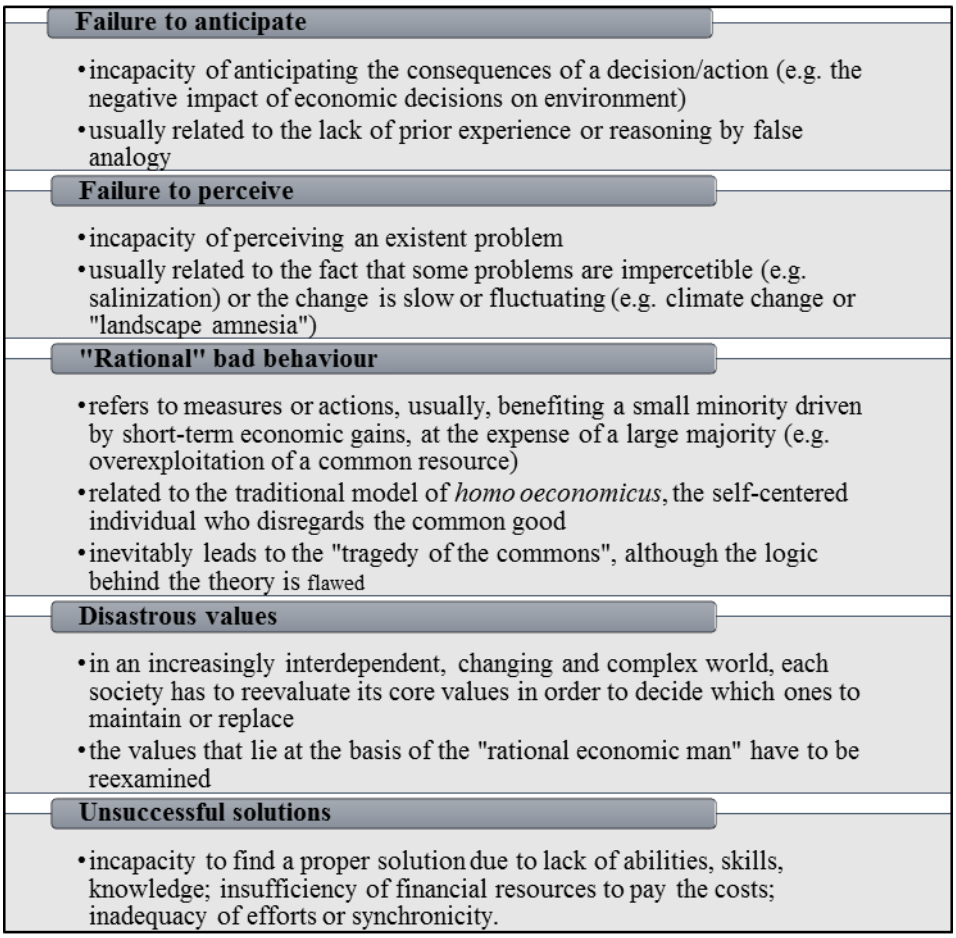
Since 1987, when the UN's Bruntland Commission released its document on sustainability, asserting the necessity of fulfilling the needs of the present generation without endangering the fulfilment of the needs of future generations and remarking the necessity of designing proper measures for managing the commons (UN, 1987), numerous definitions of sustainability and sustainable development have been advanced by experts in various fields of research. It is even estimated that there are about 300 definitions of the two terms in the field of environmental management and related disciplines, of which around 140 different denotations were released in a period of only two years after the 1987's Bruntland Report (Johnston et al, 2007). In spite of this multitude of definitions, there is nevertheless agreement among specialists, at least to a certain degree, on the well-known "triple bottom line" of sustainability (Elkington, 1997), which refers to the three main interdependent domains of action that are necessary to guarantee sustainable development translated into economic growth, social development and environmental protection (Hitchcock & Willard, 2009). Neglecting any of these three domains when measuring and promoting sustainability may have disastrous consequences. For instance, pursuing economic growth without taking into account the environmental impact could lead to supplementary costs for counteracting the negative externalities, thus reducing and even cancelling the economic benefits. The coalescence and interconnection of these three pillars of sustainability lead to the degree of sustainability of any entity, given the fact that, from a very practical perspective, the environmental dimension constitutes the *basis*, the economic dimension accounts for the *instrument*, and the social dimension is the *target* of sustainable development (EEA, 2007).

From these definitions of sustainable development, one can easily conclude that the environment (as a source of commons) is of the utmost importance in ensuring sustainability of any group or society. Nevertheless, problems associates with the environment and the exploitation of resources are difficult to detect and it is even harder to decipher their impact on the long run and take proper measures, given the fact that what might seem as a disaster for one actor, may look like an opportunity for the other (Tietenberg & Lewis, 2009).

The decision-making process of various actors (be they individuals or groups, or even entire societies) fails often due to an incapacity of anticipating the long-term consequences of an action, especially an economic one. Although the depletion of resources is quite frequently invoked as the main source of a society's collapse, some authors are sceptical of such an argument when dealing with complex societies which "are characterized by centralized decision-making, high information flow, great coordination of parts, formal channels of command, and pooling of resources. Much of this structure seems to have the capability, if not the designed purpose, of countering fluctuations and deficiencies in productivity. With their administrative structure, and capacity to allocate both labor and resources, dealing with adverse environmental conditions may be one of the things that complex societies do best [...]. It is curious that they would collapse when faced with precisely those conditions they are equipped to circumvent" (Tainter, 1988). Yet collapse is exactly what might happen even to big and complex societies if they fail to ensure a sustainable development, and one of the reasons might be precisely the centralized decision making and the formal command structures.

In an attempt to ascertain the main factors that led a group or society to collapse in the past, the American scientist Jared Diamond (2006) designed a five-point framework of analysis with contributing factors, namely: environmental problems generated by the improper management of natural resources coupled with an uncontrolled increase of population; climate change generated by both natural and man-made conditions; antagonistic relations with neighbouring societies, which led to violent, military confrontations and conquests; the

relationships with friendly neighbours and supportive trade partners, whose decrease of support make a society vulnerable; the incapacity to solve its problems, either environmental or not, due to a series of economic, political, social and cultural factors. Although the contribution of each of these factors to the collapse of a society may vary significantly (Diamond, 2006), they remain meaningful for today's societies. Yet some groups or societies continue to ignore such factors in their decision-making processes, heading for disaster by failing to anticipate and perceive the problems, manifesting "rational" bad behaviours centred exclusively on short-term self-interest, maintaining and promoting disastrous values and being unable to find adequate and on-time solutions to the existent problems (Diamond, 2006). A list of factors that could negatively influence the decision-making of both individuals and groups or societies is detailed in *Figure 1*, below.



Source: Adapted from Diamond, 2006.

Fig. 1 Map of factors contributing to the failure of decision-making process

The third factor, the so-called "rational" behaviour, will be the main object of analysis in the following parts of the current paper, aimed at identifying potential alternative behaviours, their origin and their explanation. An additional specification is necessary here, namely the fact that at the basis of the failures of group decision-making lie the failures of individual decision-making.

2. The management of the commons

The everlasting problem of the relation between a fast-growing human population and a finite base of resources destined to sustain it was for the first time systematically formulated by the English scholar Thomas Robert Malthus, in his 1798 book *An Essay on the Principle of Population* (Malthus, 1998). Here, he starts by advancing two initial postulates of his theory: "First, That food is necessary to the existence of man. Secondly, that the passion between the sexes is necessary and will remain nearly in its present state" (Malthus, 1998). From these unquestionable premises, he then derives the conclusion that "the power of population is indefinitely greater than the power in the earth to produce subsistence for man" (Malthus, 1998), for the population growth, when not controlled, happens in a geometrical ratio, whereas subsistence resources increase only in an arithmetical ratio. Accordingly, Malthus contradicted the popular opinion that a growing population is indicating popular happiness: quite the contrary, it rather indicates past happiness and raises present concern (Bashford & Chaplin, 2016), because the effects of this law-like conclusion are inescapable: "I see no way by which man can escape from the weight of this law which pervades all animated nature. No fancied equality, no agrarian regulations in their utmost extent, could remove the pressure of it even for a single century" (Malthus, 1998).

What can we do, given the circumstances? According to Malthus, we cannot do very much, but there are ways by which the scarcity of subsistence resources puts a constant pressure on a population and exerts a check that falls especially on those at the bottom of social hierarchy (Winch, 2013). This check has two forms, one preventive and one positive. The positive checks are "natural" phenomena that occur especially amongst the members of the poor class, as low life expectancy and high mortality rates: "The positive check to population, by which I mean the check that represses an increase which is already begun, is confined chiefly, though not perhaps solely, to the lowest orders of society" (Malthus, 1998). The preventive checks, on the other hand, are social and cultural phenomena, consisting of measures destined to reduce the birth rates, "moral restraints" that appear to operate at all levels of society, not only at the lowest (Malthus, 1998). As Winch resumes, "both entail misery and vice, misery being a necessary consequence, vice–a category designed to hold the casualties in the eternal struggle between good and evil–being a probable result. War, pestilence, and famine were the main positive checks; abortion, infanticide, prostitution, and other 'unnatural' attempts to accommodate the constant passion between the sexes while avoiding the consequences counted as preventive checks" (Winch, 2013).

As the Malthusian trap cannot be avoided unless drastic measures of population growth control are taken, the data show that the problem resurfaces even more urgent nowadays, raising legitimate concerns among economists, policy-makers, philosophers and the general public. For instance, in 1968, the ecologist and philosopher Garrett Hardin (at the time, Professor of human ecology at the University of California at Santa Barbara), published a famous article in *Science*, where he reformulated the growing-population problem in relation to some special kind of resources, the so-called "commons" (Hardin, 1968). Hardin's view on this issue is essentially pessimistic: "Rather, the concern here is with the important concept of a class of human problems which can be called 'no technical solution problems' [...] the class of 'no technical solution problems' has members. My thesis is that the 'population problem', as conventionally conceived, is a member of this class" (Hardin, 1968). However, the difficulty resides in the way the problem was "conventionally conceived", so he intends to reformulate it in order to find out if any solution for it is possible. He begins with analysing the relation between world population and available resources, concluding that "a finite world can support only a finite population; therefore, population growth must eventually equal zero", since we cannot maximize both the number of people and satisfy everyone's desire for "good" (Hardin,

1968). Consequently, the optimal number of population should be less than the maximum possible, and therefore population growth must be brought under control, and should be equal to zero. But if we try to find even a single case where a community of people did in fact realize this goal by itself, naturally, we will soon find out that "there is no prosperous population in the world today that has, and has had for some time, a growth rate of zero", which only means that we have to take active, coercive measures in order to attain that zero growth (Hardin, 1968).

The population growth problem is, for Hardin, an example of "the tragedy of commons", and he understands by "commons" those resources that are not privately owned, but are "free" or commonly-held or not allocated by market distribution (such as Earth's atmosphere, oceans' waters and banks of fish, groundwater, public roads, public parks, public buildings, common pastures, tropical rainforests, the World Wide Web, common knowledge and so on) and by the tragic character of the consequences of their use not people's unhappiness, but the inevitability of the course of events regarding those resources: "the inherent logic of commons remorselessly generates tragedy" (Hardin, 1968).

Hardin uses the neoclassical economic model of the rational actor, believing that individuals are rational agents that seek to maximize their own short-term self-interested benefits. Accordingly, they will perform cost-benefit calculations and as long as they think that their costs are less than their gains, they will over-exploit the commons (they will pollute air and water, deplete forests and pastures and, for that matter, will have more babies than optimum). In order to illustrate this idea, he offers an example, that of a group of farmers who share a common pasture for grazing cattle: "As a rational being, each herdsman seeks to maximize his gain. Explicitly or implicitly, more or less consciously, he asks, 'What is the utility to me of adding one more animal to my herd?' This utility has one negative and one positive component" (Hardin, 1968), respectively:

(1) The positive component is calculated as "a function of the increment of one animal. Since the herdsman receives all the proceeds from the sale of the additional animal, the positive utility is nearly +1".

(2) The negative component is calculated as "a function of the additional over-grazing created by one more animal. Since, however, the effects of overgrazing are shared by all the herdsmen, the negative utility for any particular decision-making herdsman is only a fraction of -1".

According to this reasoning, by totalling the component partial utilities, "the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another... But this is the conclusion reached by each and every rational herdsman sharing a commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit – in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all" (Hardin, 1968).

The same model applies, *mutatis mutandis*, to the problem of common Earth resources and the population growth that can thus be seen as a multi-person prisoner dilemma from the game theory (Gardiner, 2001). So, what is the solution to this difficulty, if any? It cannot be Adam Smith's idea of invisible hand and the laissez-faire principle, because if individuals are given the possibility to choose as they please, the result will be an inevitable "tragedy". According to Hardin, the only solution of the population problem, understood as a "tragedy of the commons" is to renounce altogether to the "commons" system of human breeding, i.e. to limit the previously unrestricted individuals' right to reproduction. This desiderate cannot be achieved through an appeal to individual morality and conscience, because moral conscience in this case is self-eliminating, according to a strong Darwinian logic: some people will undoubtedly respond to this appeal, and consequently will leave fewer offspring than those who do not

respond, so in the end we will have a population composed of children who inherited from their parents the tendency of disregarding those moral considerations.

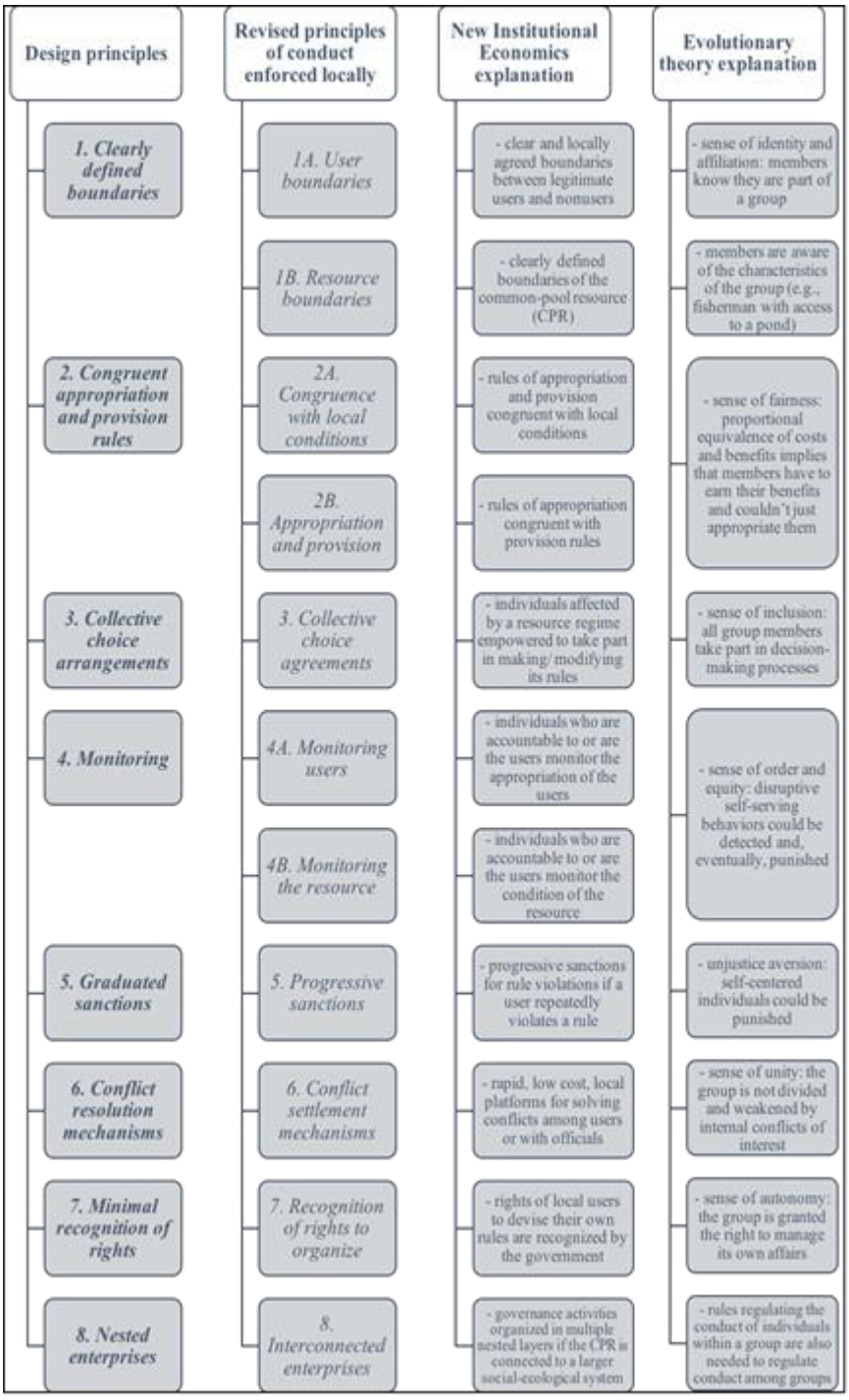
Hardin's solution is a radical one, namely some beneficial social arrangements for an increase of responsibility and a limitation of individual freedoms, such as freedom to breed, in order to attain more important desiderates. Although such social arrangements create coercion, the term "coercion" should not frighten us, as Hardin assure us that it does not imply "arbitrary decisions of distant and irresponsible bureaucrats [...] The only kind of coercion I recommend is mutual coercion, mutually agreed upon by the majority of the people affected" (Hardin, 1968).

As for the other kinds of "commons", the solution seems to be a gradual switch from common property to private property and to a legal restriction of the rights to use the resources in question. History shows us, according to Hardin, that this solution worked in many situations, for "as the human population has increased, the commons has had to be abandoned in one aspect after another": first, people abandoned the commons in hunting and gathering of food, then in the disposal of garbage, sewage water, and are still working on doing the same in regard to pollution by cars, fertilizers, atomic energy industry and so on (Hardin, 1968). The solution seems to be integral privatization of all resources.

As anyone could readily expect, Hardin's solution of mutually agreed coercion was not very appealing to all people. One of his critics was the American political economist Elinor Ostrom, to this day the only woman ever to win the Nobel Prize in Economics (in 2009). In her 1990 book, *Governing the Commons: The Evolution of Institutions for Collective Action*, she uses a new meta-theoretical research framework known as *Institutional Analysis and Development* (IAD) to investigate many cases where an intervention from top-down in the form of coercion was not needed in order to avoid some "tragedy of commons", but the solution was discovered from bottom-up (Bollier & Helfrich, 2015a). According to Ostrom, it is perfectly possible for a social group that share commons or common-pool resources (CPR) to avoid the depletion of them if certain principles of conduct are enforced locally, either in an explicit and conscious way, or, more often, in an unconscious one.

After decades of research, these principles of conduct or "design principles" are clearly stated and are related to: *clearly defined boundaries* for both the legitimate users and the common resources; *rules of appropriation and provision* that are conforming with local social and environmental conditions and rules of appropriation that are compatible with provision rules, meaning that the costs are proportional to the benefits; a resource regime that is the result of the *collective decision-making* process; coherent rules for *monitoring* both the behaviour of users and the condition of the resource; *graduated sanctions* for rule violations, depending on the gravity and frequency of the violation; fast, economical and locally-implemented *conflict resolution mechanisms* for solving the problems among users and between users and higher-order authorities; *minimal recognition of rights* of local users to decide locally on their own rules; *nested enterprises*, necessary when the common-pool resource is part of or closely connected to a wider social-ecological system (Ostrom, 2010; Ostrom, 1990).

From an evolutionary perspective, these "design principles" are nothing less than evolutionary adaptations, specific to all humans. The evolutionary explanations for the above mentioned "designed principles" are detailed in *Figure 2*, below.



Source: Compiled by authors from Ostrom, 2010; Ostrom, 1990; Wilson, 2015.

Fig. 2 Design principles for managing the commons and their evolutionary explanations

Although at the time of their first listing, at the beginning of the 1990s, Ostrom was not wholeheartedly certain that these "design principles" were essential conditions for the success of formal and informal institutions designed to manage common-pool resources (Ostrom, 1990), two decades later she clearly emphasised these "regularities" as "core factors that affect the probability of long-term survival of an institution developed by the users of a resource" (Ostrom, 2010), making the difference between a successful and a failed system of commons management, even if they are not necessarily and consciously explicit in the minds of the users of the common resource (e.g., fishermen, pastoralists, agriculturalist, etc.).

According to evolutionary biologist and anthropologist David Sloan Wilson, if we analyse these rules, we can immediately see that they are evolutionary adaptations, being based on special features of human behaviour that evolved in the context of some important evolutionary transition, and transformed us humans into a social species, such as our cultural ability to pass from one generation to another learned information, our capacity to cooperate in groups of genetically unrelated individuals, our ability to use language and other forms of symbolic thought and communication (Wilson, 2015).

As Wilson puts it, Ostrom's "design principles (DP) had 'major evolutionary transition' written all over them", being directly related to human basic needs and hard-wired cognitive mechanisms (Wilson, 2015).

3. Explanatory principles on the management of the commons

This section will try to answer two essential questions in order to pinpoint an alternative cooperative behaviour of the individual, as opposed to the selfish behaviour of the economic man invoked by the mainstream economic theory. First of all, it is important to understand whether the path to disaster because of the tragedy of the commons is inevitable for any actor failing to foresee the impact of its decision-making or whether the "tragedy" of the commons might have a happy ending. Second, it is equally imperative to comprehend whether there is a selfish human nature that drives individuals to be self-centred or whether there is space for prosocial behaviour that would benefit an entire group or society and not only the individual at the expense of the group.

Economically speaking, the environment is an asset (supplying economy with raw materials, which are transformed into goods and services) and the source of the "traditional" commons, providing the basic resources – such as water, food, shelter – necessary for the survival of every individual. Narrowly defined, the term "commons" refer to natural resources shared in common by all the members of a group or society, in which all the stakeholders have an equal interest, such as forests, lands, water sources, wildlife, oceans, etc. (Hess, 2006), while a more extensive definition includes many other categories of "non-traditional" or "new" commons, such infrastructure, medical and health, knowledge or cultural commons (Hess, 2008).

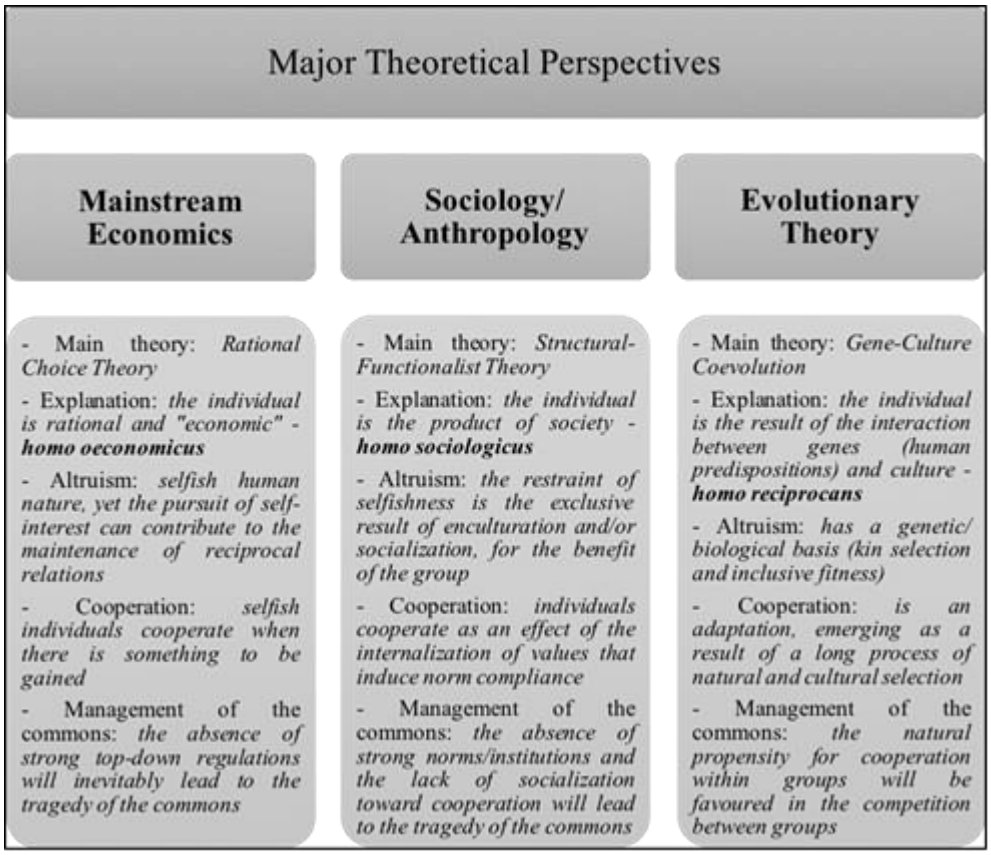
As is the case of any economic asset, the overexploitation and depletion of a resource, especially a basic one, would be illogical, irrational and against the interests of the beneficiaries. A widespread explanation for such a "tragedy" invokes the type of property rights over the resource, defined as entitlements instituting the right, privileges and potential limitations of the owner on the use of the resources (Tietenberg & Lewis, 2009). Nonetheless, the commons are not under private property rights, with an explicitly identified and unambiguous owner, but either under a common property regime, where the resource is collectively owned and controlled by a group of co-owners or under an open-access regime, where no individual or group owns or controls the resource, yet all have the right to use it. In both situations, the resource might be protected either formally, through specific legal rules, or informally, by tradition or custom. Allegedly, in such property

regimes there would be no incentive or motivation for individuals to use the resource efficiently and responsibly, problems arising from conflicting interests of the collective decision making or from the tendency of each self-centred actor to pursue its best interest and the higher outcomes.

Hence we have a "social dilemma", a prevalent term in social sciences to describe situations where self-interests conflict with collective interests, thus leading to big problems and serious costs for the entire group or society (such as depletion of resources, overpopulation or pollution). In a social dilemma, each individual would achieve the higher outcome by defecting instead of cooperating (e.g., having more children, consuming more resources or polluting more), regardless of the others choices, yet all individuals would have greater benefits if all decide to cooperate than if all decide to defect (e.g. a responsible behaviour would lead to a less polluted environment that would benefit all the members of the group or society) (Dawes, 1980). The dilemma appears in the decision-making process, from the conflict between deciding what is best for the group (and implicitly for the individual in question) and what is best exclusively for the individual (Balliet & Van Lange, 2013).

Different disciplines have different interpretations and distinctive solutions for such social dilemmas (synthesized in *Figure 3*, below), most of them assuming that there is a selfish human nature, that the individual (*homo oeconomicus*) is rational and will always choose to maximize his/her utility, regardless of how this utility is defined. On the one hand, both mainstream economic sciences and social sciences appeal to the rational choice theory as an explanatory principle for the social (and economic) behaviour of an individual, assuming that a rational behaviour is the one that would generate the best outcome without consideration for the other members' outcomes (Field, 2004). In such a situation, the commons will be depleted (as any individual will try to gain the higher payoff) in the absence of formal measures of control over the use of a resource (e.g. top-down regulations, clear property rights, institutions to enforce the rules, etc.) or of solid social norms and institutions that would socialize the individuals so as to internalize the norms (Fehr & Gintis, 2007). On the other hand, the evolutionary theory advances the "tribal social instincts hypothesis", assuming that altruism and cooperation are adaptations specific for an innate psychology of individuals, selected for in a long and complex process of natural and cultural selection. Yet prosocial behaviours were well adapted for living in small, egalitarian societies, and may prove to be ill adapted for living in today's societies, which are complex, large, with multiple-layer hierarchies and wide-ranging dominance of elites (Richerson et al, 2002).

As one can easily see from *Figure 3*, the evolutionary theory advances an alternative explanation for the behaviour of *homo oeconomicus* or *homo sociologicus*, one that would avoid the tragedy of the commons, namely *homo reciprocans* (Bowles & Gintis, 2002), capable of altruistic and cooperative behaviour. Therefore, institutions of complex societies must take advantage of the prosocial tribal instincts of the human species (Richerson et al, 2002), incorporating these natural predispositions of altruistic behaviour toward non-kin in behavioural models (Field, 2004).



Source: Compiled by authors from Fehr & Gintis, 2007; Wilson, 2015; Richerson et al, 2002; Bowles & Gintis, 2002.

Fig. 3 Major theoretical perspectives and their fundamental assumptions

Numerous empirical data, gathered by specialists in various fields of research (e.g. economics, sociology, evolutionary psychology, social psychology, etc.) support the "tribal social instincts hypothesis", confirming that the individuals manifest a natural tendency to cooperate with non-kin and strangers even in one-shot interactions and that the management of the commons is more efficient in small-scale entities (e.g. rural communities), with a shorter and simpler chain of command (Richerson et al, 2002; Schmid, 2004).

Conclusions

The main goal of the current paper was that of investigating whether the environmental resources depletion and the „tragedy of the commons" are inevitable courses of action for a given entity, given the alleged selfish human nature and the rational behaviour of *homo oeconomicus*. Although theoretical, the research was based on sound empirical data gathered by experts in different domains of academic activity. The paper reviewed the explanatory principles for the individual behaviour prevalent in three main theories, namely the economic theory of the rational choice (*homo oeconomicus*), the sociological theory of norms and socialization (*homo sociologicus*) and the evolutionary theory of gene-culture coevolution (*homo reiprocans* or *cooperator*). All these theoretical perspectives are

relevant for understanding the individual behaviour when it comes to the management of the commons, and the third one brings strong evidence in supporting the hypothesis of an altruistic and cooperative human nature, boosted by proper social norms and institutions. The explanation for human cooperation lies both in a naturally selected human propensity and a culturally selected adaptation, given the fact that cooperation within group would bring higher benefits for all the members of the group, especially in front of confrontation between groups. Although much work remains to be done for solving the puzzle of cooperation, the model of *homo reciprocans* is of great significance in designing institutions for the management of the commons.

Going back to the main issue, it could be emphasized that there is no simple way for perceiving, comprehending and, ultimately, solving the negative impact of the human behaviour and economic activities upon the environment or the commons. Nevertheless, the widespread opinion that the irresponsible exploitation of resources beyond a certain level may lead to a severe disequilibrium of the ecosystem, with immeasurable consequences for humanity, might need a reconsideration in the light of the new model of human behaviour advanced by evolutionary theory.

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REDUCING FOOD WASTE IN ORDER TO BECOME THE ZERO HUNGER GENERATION

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Abstract
This paper aims to analyze the phenomenon of food wastage by identifying the generating factors, pointing the solutions and examining the benefits of efficient waste management. The research also reviews the economic, social and environmental side effects trying to provide integrated solutions to reduce it. Starting with awareness campaigns, the right use of advertisements on labels (such as best before and use by) and also by reducing losses in the value chain, wastage will become history. Each of the contributing factors of wastage, represented by impairments during the manufacturing process distribution, packaging, storage or marketing, causes a huge disequilibrium in the distribution of resources, with tragic consequences: more than 800 millions of people suffer from malnutrition and hunger. The conclusion of the research is very clear: shortening the supply chain, improving logistics through superior transport conditions and proper packaging are mandatory. This paper aims to signal the need of preventing and reducing food waste, in order to meet the European objective: reducing by half the total amount of waste, until 2025. Otherwise, the outlook is bleak: escalating waste with 40%, reaching 126 million tons by 2020, with tremendous consequences on environment, global economy and, most important, people who will continue to starve to death.
Keywords:
Food waste, environment, resources, pollution

Introduction

The 21st century faces multiple challenges, characterized by highly advanced technologies and mechanisms designed to improve the quality of life in all its aspects. Unfortunately, same 21st century is tolerating hunger, extreme poverty and food waste. This paper aims to examine the global dimension of the food waste phenomenon by analyzing the generating factors and by identifying efficient solutions that can be implemented on the short, medium and long term, so that the objectives set by international organizations, regarding the significant decrease of waste values, to become reality as soon as possible. Also, we will present the side effects of food waste, given the fact that food waste generates both economic and social consequences, and also environmental challenges. This paper is intended to research the importance that food waste management has in the sustainable development strategies, both at European and global level (most of the sustainable development objectives can be linked with food wastage). Given the environmental, economic and social implications, food waste should become a top priority for every UN and EU member state. In this regard, the European Union's has decided the target of reducing by half the total amount of food wasted in the entire production chain, and it must be achieved by 2025. However, achieving the common targets set by the European Commission depends on the individual performance of each member state. Although, at European level, there is no official, perfectly harmonized definition of “food waste”, this concept has a mutual significance -the total amount of food that has been removed from the supply chain as a result of impairments (aesthetic, packaging, marketing or as a result of approaching expiration date) although they are still edible and could be still used or