

Wastes as a potential commons: Towards a new form of governance of the environment

Helen Micheaux & Franck Aggeri,

Mines ParisTech, PSL Research University, Centre de Gestion Scientifique (CGS), UMR CNRS i3 9217

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For the circular economy, deposits of waste electronic and electrical equipment (WEEE) are becoming a secondary source of key raw materials for satisfying the growing needs of both digital technology and “green” energy, another major consumer of strategic metals. Working these deposits implies depolluting the wastes that contain dangerous substances with potentially tragic effects on people and the environment. These multiple and possibly contradictory issues have led to adopting rules of collective governance, which involve manufacturers, recyclers and public authorities. In Europe, WEEE is subject to the principle of the manufacturer’s responsibility for what happens to his products at the end of their life cycle. In France, this principle has led to setting up original arrangements for managing e-wastes through a governance similar to Elinor Ostrom’s common pool resources. This striking analogy is examined in order to provide a new view of waste management policy in France and identify the ways to eventually improve it.

A change can be observed in waste management policies over the past few years. From a regulatory approach centered on the pollution caused by wastes, a shift has been made to a policy for promoting wastes as a resource. This paradigm shift from wastes as pollution to wastes as a resource has been molded by the concept of a circular economy, which was made popular at the end of the first decade of the 21st century. In France, waste management is an axis in both the Circular Economy Roadmap (FREC) released in April 2018 and the bill of law on the circular economy introduced in early June 2019. The circular economy tends toward an economy that soberly consumes resources and tries to minimize its environmental impact (MINISTÈRE... 2018).⁽¹⁾

The circular economy, as problematized, has the objective of turning wastes into resources. Wastes thus become a secondary resource to be exploited, a substitute, insofar as possible, for primary raw materials. It is complicated to implement this promising idea because wastes are, by definition, second-hand products abandoned by their owners. Belonging to nobody, they potentially belong to everyone. They thus

become the subject of strategies for “capturing” their value when no regulations exist.

This paradigm shift has led to changes in public interventions in waste management. Since the 1970s, Europe has sought to hold economic agents accountable for fighting against the unauthorized dumping of wastes and responsible for the poor management of wastes and the pollution caused by industrial activities. This approach stems from the “polluter pays” principle, which initially targeted the activities of the industries emitting wastes that caused pollution.

The principle of “extended producer responsibility” (EPR) was thus worked out in the early 1990s (MÉROT 2014). It targets the economic agents at the source of wastes, the intent being to hold producers responsible for the end of the life cycle of the products they place on the market. One goal has been to provide financial relief to local authorities, who face growing piles of new types of wastes (plastic wrappings, electric and electronic equipment wastes or WEEE, end-of-life vehicles, batteries, etc.) without having the means or qualifications for handling them. Another EPR goal has been to induce producers to design their products so that recycling them will be easier, what has been called “ecodesign”.

⁽¹⁾ This article, including quotations from French sources, has been translated from French by Noal Mellott (Omaha Beach, France). The translation into English has, with the editor’s approval, completed a few bibliographical references. All websites were consulted in August 2020.

This policy for allotting responsibility is innovative in comparison with traditional forms of management, which pitted government interventions against private initiatives. It is complementary to traditional interventions by public authorities, such as regulations and incentives. In environmental problems, *“given the level of uncertainty, of complexity [...] and of the distribution of know-how between several parties, public authorities no longer have enough means or knowledge for unilaterally building a regulatory framework”* (AGGERI 2000).

Transposing the EPR principle into the law of EU member states has given rise, depending on the options selected, to different systems of waste management. In France, an original model of governance has arisen that musters private parties to collectively manage wastes; a common resource. This implies, beyond classical public-private contracts, a novel form of collaboration between the state and private entities. The transition toward a circular economy involves taking up a major challenge: mobilize all entities concerned (producers, recyclers, consumers, etc.). The intent is less to enforce rules than to encourage initiatives and develop innovative partnerships for the purpose of coming up with new solutions. The method for drafting the circular economy roadmap (FREC) and the transposition of its words into deeds illustrate this process. FREC seeks to be participatory and empowering.

This model of collective governance reminds us of the governance of the commons, the topic of many writings since the seminal work done by Elinor Ostrom. This article, drawn from work on a dissertation,⁽²⁾ proposes an original interpretation of waste management policy in France by making a detour through the commons. After indicating how the problem of WEEE resembles the tragedy of a common pool of resources, we shall use the literature to suggest how to overcome this tragedy. An approach is then proposed to wastes as a common good with a potential for being collectively valued; and an analogy, made between the governance of the “waste commons” in France and that of natural resources as described by Ostrom. This comparison helps us discern the major points of difference and imagine possibilities for regulation.

The tragedy of electronic wastes as a common resource

The development of digital technology and green energy has revealed developed countries’ critical dependence on special strategic metals. Essential to high tech production, this new source of geopolitical tensions is upsetting economic relations worldwide. China controls nearly 95% of the world’s production

⁽²⁾ MICHEAUX 2017. This dissertation was conducted under the Chair “Mines Urbaines”, which groups the three engineering schools in the ParisTech network. Its methodology entailed consulting many secondary sources (reports, acts of law, studies, etc.) and carrying out approximately sixty semidirective interviews with various people in WEEE in France and Europe. See <http://mines-urbaines.eu/fr/accueil/>.

of rare earths, including neodymium and dysprosium (used in the magnets of wind turbines). Although rare earths only amount to 0.01% of the production of iron and represent an annual market of \$6.5 billion — 276 times less than the oil market (PITRON 2018, p. 179) — China’s dominant position is a factor of fragility for all branches of high tech that depend on these metals, even though very small quantities are at stake.

The urban mine, valuable deposits with tragic consequences

From the perspective of a circular economy, the wastes from electric and electronic equipment (WEEE) represent a noteworthy deposit of strategic metals. To imagine WEEE’s potential value as a secondary resource, an analogy has been made with “urban mines”, the “place to prospect for new deposits of raw materials” (GELDRON 2016).⁽³⁾ While “natural” mines are being depleted, urban mines are stocking ever more metals. A tonne of mobile telephones contains an estimated 200 g of gold as compared with 5 g/tonne of minerals extracted from a “worthwhile” goldmine. In addition, working urban mines can help relieve the economic and environmental pressures on raw materials.

However the analogy with mining has limits. The major one is the complexity of tapping the resources contained in wastes. In effect, the electronic wastes in urban mines are dispersed and polluted; and their composition varies with changes in technology, changes so rapid that the European Union has to regularly update its list of strategic metals. Besides, despite their potential as a strategic resource, electronic wastes also contain substances dangerous for people and the environment, substances ranging from refrigerants to the mercury in fluorescent tubes or flat backlight screens, or the heavy metals like bromine in flame retardants for plastics.

Europe has strict regulations about handling WEEE, but this is not the case everywhere else, in particular in Africa and Asia. In these countries, the retrieval of the value stored in WEEE overrides the protection of health and the environment. In these lands, the wastes are processed in very small-scale operations heedless of the sanitary and environmental effects. Chip cards are heated to remove soldering; cables, burned to retrieve the copper but with the emission of toxic smoke. Highly concentrated acid baths extract the gold from circuit boards, the residue left to pollute soil and streams.

While the inappropriate processing of WEEE has tragic effects, the value of urban mines has been significantly underestimated. Only a quarter of the metals contained in WEEE are recycled — less than 1% of strategic metals (UNEP 2011). In fact, these strategic metals are often complex alloys that have to be separated from other substances, a costly operation. Retrieving WEEE is not so much a technological as an economic challenge.

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A parallel with the tragedy of the commons

The WEEE situation is a variant of the “tragedy of the commons”, a phrase coined by the ecologist Garrett Hardin (1968). His well-known article cites the example on a pasture open to all herdsmen. Pushed by his own interest, each herdsman will be tempted to bring ever more cattle to graze on the commons. This ultimately depletes the resource, and the pasture will no longer be of use. This example illustrates that actions by a plurality of persons are unable to favor the conservation of a joint resource because of the centrifugal forces of individual interests. Hardin concluded that the optimal management of a commons necessitates either private ownership or state allocation.

This predatory “logic” leads to a tragedy... with a few qualifications in the case of electric and electronic wastes. WEEE represents a store of value that does not, in principle, belong to anyone. This abandoned value is the source of the informal (or even illegal) operations that seek to retrieve it. Motivated by the quest for profits, these operations pay no heed to the environmental impact. The greed of these economic agents pushes them to collect a maximum of wastes in order to retrieve as much value as possible at the lowest cost. By grabbing important deposits of WEE (nearly two thirds of those produced in Europe), these informal operations jeopardize the legitimate business of companies in the formal (or official) economy in Europe. These informal businesses do not play by the rules, destabilize the system and impair the development of industries much better equipped to process wastes. The impact on nature and human health is negative; and the importance and value of WEEE are underestimated. As in the situation described by Hardin, this tragedy can be blamed on opportunists who, in pursuit of their own interests, are heedless of environmental regulations or ethical rules.

How to cope with the tragedy of the commons?

To see how to cope with the tragedy of the commons, we must turn to Elinor Ostrom’s (1990) work. This recipient of the Nobel Prize in Economics formalized another conception that objected to Hardin’s pessimistic view, considering it to be reductionist since it overlooked economic agents’ capacity for self-regulation. She proposed an interpretation for a much more sustainable management of the commons.

Ostrom sought to show that several ancestral communities had successfully undertaken the collective conservation of a common resource while resisting the hegemony of globalization and the dominance of the laws of the marketplace. She adopted this approach to study cases from around the world of communities that have kept this form of collective management for the conservation of the natural resources useful to them. A major result of her research was to identify eight principles for the governance of “common pool resources”, namely:

- Clearly define the limits of the resource and the limitations on users’ rights. This principle brings into the picture the users of the resource, *i.e.*, the group of

individuals who have a stake in its efficient management.

- Establish rules of use adapted to local conditions and obligations.
- Set up arrangements for users to take part in collective decision-making and the adoption of operational rules.
- Establish a system for monitoring the resource in which supervisors are accountable to users or are themselves users.
- Impose a graduated set of sanctions as a function of the seriousness and context of violations. A key to success is that users themselves, instead of an outside authority, should make decisions about sanctions.
- Institute rapid, low-cost procedures for settling conflicts.
- Obtain at least a minimal recognition by outside authorities of the right of communities to organize themselves and of the rules stemming from this self-organization.
- Nest multiple layers of rules and institutions.

The key is to involve those who use the resource — called “*commoners*” — in setting up the rules for conservation of the resource. For Ostrom, Hardin’s tragedy resulted from the absence of user-made rules. It corresponded to a *laissez-faire* that eventually depletes the common resource.

We can point out a first difference with the idea of wastes as a commons: wastes have no “natural” value, unlike so-called natural resources, such as plant- or wildlife or raw materials. Electronic wastes are a source of pollution to be eliminated; but the collective actions of collecting, decontaminating and processing these wastes are what endows them with a potential value owing to the substances they contain.

A recent approach to the problem of the commons helps us deepen the analogy. Since the digital revolution, the idea of the commons has been expanded to cover immaterial goods, such as information (DARDOT & LAVAL 2015, CORIAT 2015). Since Ostrom’s studies of “natural” commons, a whole field of research has been opened on the commons as a center of collective actions.

The commons as a form of politics

Nowadays, communities of citizens are demanding the creation of common pool resources and the right to use them. The commons is presented as a cure for the lack of confidence in politics, as evidence of new forms of sociability, sharing and cooperation, as “*spaces of citizen initiatives of co-construction*” where users enjoy a degree of “*direct participation in collective management*” (MONSEIGNE 2016). Pierre Dardot and Christian Laval (2015) have boosted this approach by proposing a view of the commons as a new form of collective action that results from mobilization and can take a multitude of forms. Benjamin Coriat (2015) has adopted a similar approach to discussing the “return of the commons”. As these authors admit, the commons used to be related to the nature of things; it did not

necessarily exist prior to collective action. But the commons is now related to actions by people: it emerges through and from collective action. This approach prefers the verb form of “*commoning*” (FOURNIER 2013), i.e., the “*process of putting in common*” (LEYRONAS & BAMBRIDGE 2018), which sheds light on the fertility of this idea. Through feedback, the commons creates a collective action that will fertilize it and produce new forms (FOURNIER 2013). The processes for endowing WEEE with value can thus be likened to the activity of “*commoning*” whereby the common resource emerges from collective action.

Three key factors and the example of Wikipedia

The commons now has many forms. Three points — a resource, a community and a governing structure — define it and set it apart from as a collective action. The resource might be natural (a river or forest), material (a theater or fleet of wind turbines) or immaterial (software or knowledge). The community is the group of individuals who claim the right to use this resource. Through collective discussions and negotiations, it lays down the rules for using the commons and institutes reciprocal obligations. These group-made rules give shape to a governing structure.

A well-known example of an information commons is Wikipedia, the online encyclopedia. In this case, there is no need to protect a material, “natural” resource against the risk of depletion. Instead, the risk is that the quality of the information in the encyclopedia declines. This quality is what is to be protected. For this purpose, rules and conventions have been collectively established. Let us examine Wikipedia as a common pool resource in relation to the three aforementioned points.

The **RESOURCE** is an encyclopedia that, like general and specialized encyclopedias, almanacs and atlases, contains information. It is made up of articles classified by category.

The **COMMUNITY** is formed by Wikipedia’s users. It is open to all: any user may become an author, corrector and contributor.

Two aspects of its **GOVERNANCE** are salient: the special status of some members of the community and the ranking of rules. Some members of the community have a special status and are technically qualified in comparison with ordinary contributors: the positions of system administrator and of system operator (the persons who manage accounts, verify addresses, etc.). These operators probably have the broadest technical power, since they may delete or protect pages, or sanction behaviors. Decisions are made by consensus. Any user may initiate a process for making a decision. Different tools and methods help the Wikipedia community reach a consensus. In addition, rules are ranked in a hierarchy, which may be modified at any time. Only the “*five pillars*” cannot be changed, namely: Wikipedia is an encyclopedia; neutrality of viewpoint; “*free content that anyone can use, edit and distribute*”; “*respect and civility*” between editors; and “*no firm rules*” apart from these five.⁽⁴⁾ Rules

⁽⁴⁾ https://en.wikipedia.org/wiki/Wikipedia:Five_pillars

and recommendations stipulate what is accepted or not (the respect of copyright law, the right to modify posted information, etc.). For example, a contributor may not, given the pillar on neutrality, post unpublished work from his own research. Conventions have also been established to see to the coherent presentation of contributions (page layout, typesetting, etc.). If conflict occurs or the rules are violated, various methods of dispute resolution exist, ranging from requests for community input to recourse to an arbitration committee, a procedure that might lead to blocking a user’s account.

The enthusiasm created by the commons movement opens possibilities for responding to the problems related to collective action. For WEEE however, a major difference exists; and Ostrom’s principles of common pool resource governance cannot be applied as such. The aforementioned commons, whether natural or informational, have arisen out of a spontaneous demand by persons who are willing to take responsibility for the common resource and have a direct interest in doing so. In the case of WEEE, these persons do not exist. In fact, the value in wastes is not directly accessible. It is a potential to be realized only if the wastes are processed collectively. So, the actions of collecting, decontaminating and processing must be performed in order to recuperate the value of the secondary substances latent in these wastes. In other words, there are no commoners at the outset.

This major difference means that a new sort of commons must be designed wherein the state plays the key role by designating the leaders and parties responsible for developing this commons. To pursue the analysis of wastes as a potential common pool resource, let us look at the EU’s EPR and at the French case.

The EU’s extended producer responsibility (EPR)

Under EU directives about the wastes subject to the principle of extended producer responsibility (EPR), producers of the wastes have two options. They may assume their responsibility individually (by setting up WEEE collection points for recuperating their own products and equipment at the end of their life cycle and processing them in compliance with regulations) or collectively (by joining an organization that groups several producers and manages shared points of waste collection). For obvious reasons related to economies of scale, most producers choose the latter option, whereby an organization assumes the responsibility for achieving the collection and processing objectives of its members, objectives calculated as a function of the volume of the products that these members have placed on the market.

In France, application of the EPR principle has spawned approximately fifteen EPR groupings, each for a certain sort of wastes: end-of-life vehicles, batteries, textiles, WEEE, etc. These groupings are managed collectively by “*eco-organizations*”, a term proposed by Alain Geldron, a national expert on raw materials at the French Agency for the Environment and Energy

Management (ADEME). The producers who do not want to set up their own system may thus transfer their obligations for collecting and processing the wastes coming from their products to an eco-organization by making a payment. There are two eco-organizations for WEEE: Eco-Systèmes-Réylum (ESR) and Ecologic.

France is not the only country that has transferred the governance of wastes to eco-organizations. Such organizations exist in other EU member states. A study by ADEME (2016) has identified the points of convergence and divergence in the systems of member states for organizing and funding EPR groupings. Let us focus on the case of France with its particular model of joint consultations and collective responsibility, which implicates a large number of stakeholders for managing wastes and extracting value from them.

EPR groupings in France: A governance of the commons?

This collective model is related to a form of governance for common pool resources. Before insisting on the major difference (the “natural” absence of commoners), let us pursue the analogy by describing the characteristics of wastes as a common resource (cf. Table 1) with a community of users and stakeholders that has a governing structure.

THE RESOURCE is the wastes that have a value if collectively processed to extract it. They are a source of energy, of substances and of spare parts. In 2016, 80% (in tonnes) of WEEE were recycled. The others forms of processing involved extracting energy (8%), reconditioning for reuse (1%) and reusing parts (1%), while 10% were eliminated (ADEME 2017). However wastes do not “naturally” have a value. The net value of most WEEE is, in fact, negative owing to the costs of decontamination and processing. In 2013, the income from all eco-organizations amounted to €87,979,000 in comparison with operational costs of €203,854,000 (ADEME 2014).

From the viewpoint of a circular economy, we see farther and can talk about the social value of wastes. Waste management creates local jobs, which cannot be offshored, and brings people back into the labor force. According to a recent study (ORDIF 2018), nineteen full-time jobs were created per 10,000 tonnes of household wastes in Île-de-France, which includes the greater Paris area. WEEE alone accounts for 7000 jobs in France, 2700 of them mostly in the “social

and solidarity economy”, in jobs related to reusing wastes (ECO-SYSTÈMES 2017).

THE COMMUNITY OF USERS AND STAKEHOLDERS: ITS ORGANIZATION AND SPECIAL STATUS. This community is mainly made up of producers or, more precisely, those parties who bring their products to the market and are subject to EPR. However it is important not to forget stakeholders, who also take part in the governance of EPR groupings, among them: local elected officials, certified associations for the protection of the environment, national consumer organizations, the operators involved in waste prevention and management (including those in the “social and solidarity economy”), labor organizations, representatives from the ministries concerned, and ADEME as an expert.

In the case of WEEE, all producers of household appliances have chosen the option for sharing the responsibility of managing these wastes by joining one of the eco-organizations in charge. Depending on the volume of products placed on the market, the producer has to pay a fee, the “eco-participation”, for funding the system. This eco-participation is passed on to consumers. The WEEE eco-organizations have come out of an experiment conducted in the Nantes metropolitan area between 2002 and 2004 and funded by ADEME. The objective was to gauge the conditions (logistics, estimates of the volume of movements and costs, etc.) for setting up a nationwide organization. This experiment involving 200 producers and trade groups was intended to lead to the formation of a collective organization. Since WEEE covers quite different products and markets, three eco-organizations were formed: Eco-Systèmes for big household appliances, Ecologic mainly for ICT (information and communications technology), and ERP (which has lost its certification) for Europe. These WEEE eco-organizations are operational. Apart from the funding that they bring to local authorities for waste collection, their major assignment is to orient the flow of wastes toward processing centers. From this purpose, they sign contracts with services that provide the logistics for transporting the wastes toward the centers, where they are grouped by category (cf. Figure 1).⁽⁵⁾ The wastes are then oriented toward processing centers for decontamination,

⁽⁵⁾ Big household appliances (GEM F and GEM HF, respectively “cold” and “not cold”), screens and small household appliances (PAM).

	<i>NATURAL COMMONS</i>	<i>WASTES AS A COMMON POOL RESOURCE</i>
<i>Resource</i>	A natural resource	Wastes, a material resource
<i>Community</i>	Farmers or others	Producers of the wastes
<i>Structure of governance</i>	As described by Ostrom’s principles	An executive committee (<i>commission des filières</i>) and terms-of-service requirements

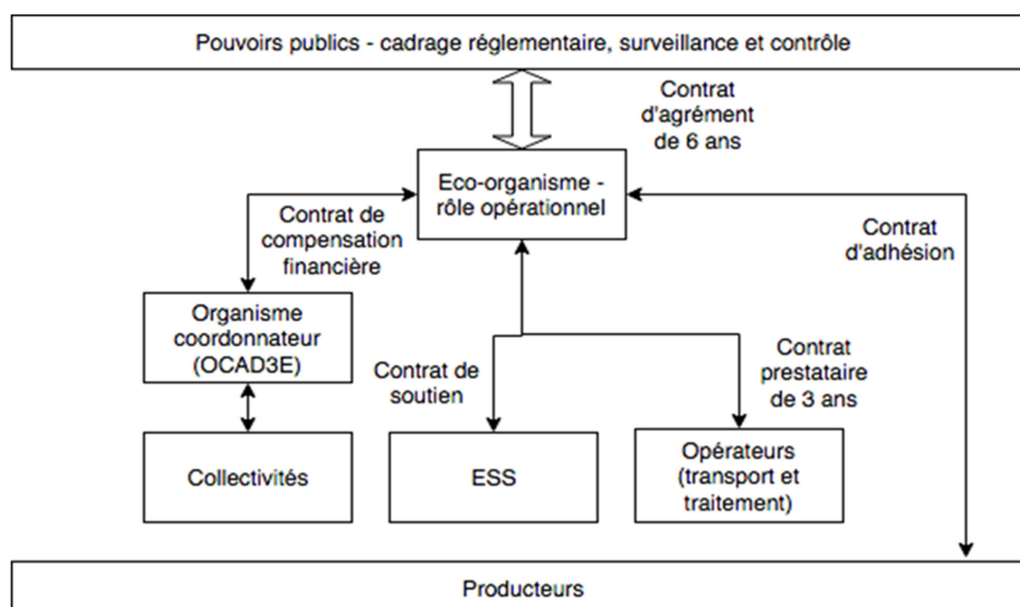


Figure 1: The contracts that shape the EPR system for WEEE

crushing and sorting of the output before reselling whatever has a value on the raw materials market. Part of the income from sales goes to the supervisory eco-organization.

These eco-organizations enjoy a special legal status: they have an assignment in the general interest but operate under private law. In this sense, they are nonprofit organizations certified by public authorities for a 6-year period, which may be renewed. They are subject to a strict set of requirements that define best-effort and performance obligations as well as their relations with stakeholders. Under French regulations, the entities that place products on the market are responsible for governance. Eco-Systèmes-Récyclum is the eco-organization representing most WEEE producers: 1599 producers (representing 78.9% of the equipment placed on the market) belonged to it in 2017. Its governance is exercised by 41 firms; but state authorities examine the books.

This special legal status places an eco-organization's activities on the borderline between private and administrative law — a source of confusion and sometimes of conflict between parties. Disputes have arisen about the conditions for collecting wastes and about funding between certain eco-organizations and the local authorities who have signed contracts with them. The multiplication of legal actions involving certain EPR groupings has hampered, even paralyzed, their operations. Legal actions have had one positive effect: they have clarified the venue for hearing cases involving contracts between eco-organizations and local authorities. Four court decisions have concluded that these contracts are under administrative (and not private) law.⁽⁶⁾

⁽⁶⁾ A decision on 5 December 2017 by the appellate court in Angers; a decision on 15 February 2018 by the appellate court in Nîmes; and two decisions on 29 May 2018 by the appellate court in Bordeaux.

THE GOVERNING STRUCTURE: CONSULTATIONS AND TERMS OF SERVICE. A special aspect of EPR groupings in France has to do with the procedure for drawing up the terms of service through consultations with stakeholders. These consultations take place within an executive committee (*commission des filières*), a governing body that reaches across all EPR groupings and eco-organizations (cf. Figure 2). Besides its advisory role in relation to the minister of the Environment, it can be consulted for an opinion about the terms of service in EPR groupings. This committee has the tasks of mediation and of harmonization between these groupings. Its members come from the state, producers, local officials, the operators involved in the waste prevention (including those in the “social and solidarity economy”), associations, labor unions and eco-organizations (The latter do not vote however).

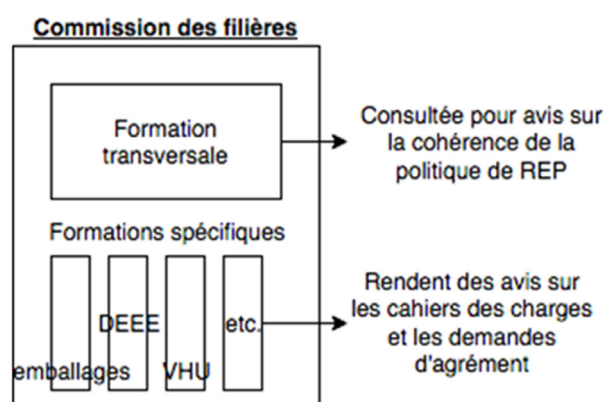


Figure 2: The governing structure of EPR groupings

Each EPR grouping has a similar governing structure adapted to its sector: a “*place of dialog, exchanges, consultations, for sharing initiatives and pooling experiences between stakeholders on the topics specific to each grouping*” (Article D541-6-1 §VI).

These structures issue opinions on plans for decrees that will stipulate or modify the terms of services, on demands for certifying eco-organizations and on the approval of producers' proposals for setting up their own waste management systems. Figure 3 outlines the certification procedure.

These committees bring all stakeholders around the table for discussions about the clauses to introduce or modify in the terms of service of eco-organizations. Through regular meetings, they monitor EPR groupings, verify whether the objectives fixed by regulations have been reached, identify shortcomings and eventually propose improvements. Their role is, however, advisory; the executive committee itself has no decision-making powers. In parallel, various work groups make reports on topics submitted for consideration.

As certifications are renewed, the terms of services are redefined to include an ever expanding range of assignments. In the WEEE grouping, the terms of service have grown from four to more than forty pages (in the most recent version released in 2014). Beyond the objectives of decontaminating and processing wastes, the WEEE eco-organizations have the duties: to *“undertake actions for promoting the prevention of the production of wastes, as of the phase of the design of household electric and electronic equipment”*; to modulate eco-contributions as a function of the criteria laid down by the certifying commission; to *“see to employment”* for specific categories of job-seekers by proposing agreements with *“certified companies in the social and solidarity economy”*; to develop new channels of waste collection; and to *“foster research, development and innovations in the field of prevention and in procedures for collecting and processing household WEEE”*.⁽⁷⁾ The priorities for research are to fight against illegal waste disposal operations and study the processing of plastics

⁽⁷⁾ The terms of service in the appendix of the decree of 2 December 2014 on the procedure of certification and the terms of service of WEEE eco-organizations.

containing flame retardants and the recycling of strategic metals. The last topic is at the origin of the Chair of Research “Urban Mines” created by Eco-Systèmes on 11 February 2014.

How this new commons is different...

A comparison of a “natural” commons with wastes as a commons brings to light the significant differences between their forms and types of governance (cf. Table 2). Let us now examine the specific characteristics of wastes as a commons in comparison within “natural” and “informational” commons.

THE GOAL: CREATE VALUE. The goal is not the conservation of a resource (as for a natural commons), nor to augment or ameliorate a database (as for an informational commons), but to endow electronic wastes with an economic value, to turn them into a resource with an optimized life cycle so as to limit the consumption of raw materials. WEEE as a common good is both negative, since these wastes might contain toxic substances, and positive since they might be a valuable resource.

A COMMONS INVOLVING PUBLIC AND PRIVATE ACTIONS: Beyond these different goals, the major difference has to do with the status of the parties involved. Research on the commons has concentrated on case studies outside the marketplace or state. In contrast, handling WEEE as a common good involves a mixture of market activities and government actions. On the one hand, producers have a leading role in managing wastes as a commons, and have been designated to play this role under the EPR principle. On the other hand, the state has a key place in instituting a governing structure for this new commons, since producers have few natural incentives for being concerned about the products they have placed on the market at the end of their life cycle. While allowing room for economic agents to maneuver, carry on with their business, innovate and find solutions, the state has to maintain its surveillance and control in order to see to it that objectives are attained.

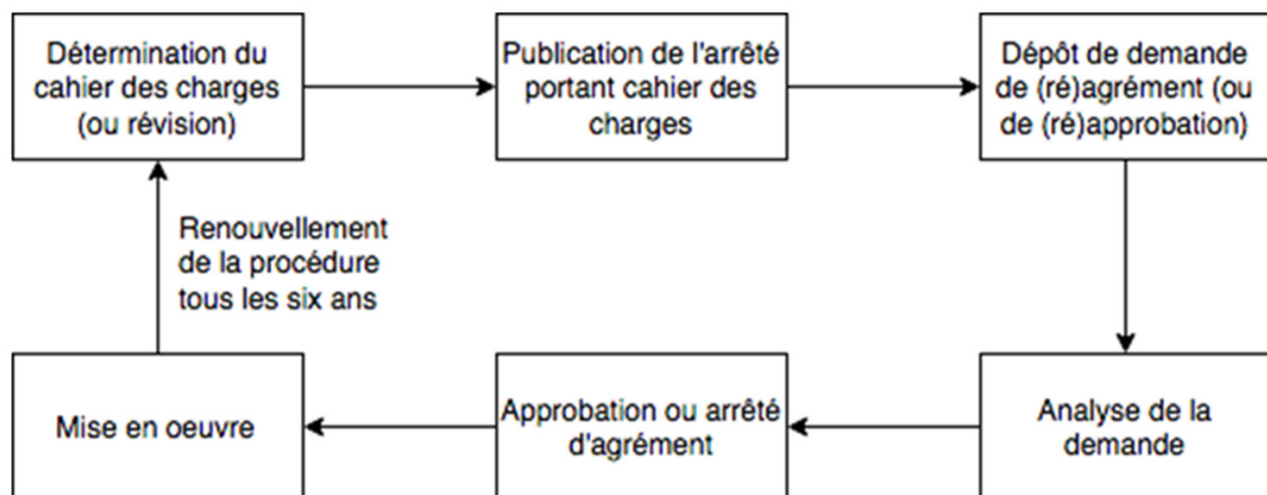


Figure 3: The procedure for certifying eco-organizations

<i>Principles</i>	<i>EPR groupings</i>
Clearly defined limits related to the resource and users' rights	Wastes subject to the EPR principle are a matter of law — laws that designate the parties placed in charge of waste management. Regulatory measures state how the EPR principle is to be applied through the authorization granted to certain parties (groups or individuals) to tap these wastes as a resource.
Rules of use adapted to local conditions	Terms-of-service requirements foresee taking the local context under consideration and including local companies from the “social and solidarity economy”.
Arrangements for user participation	An executive committee (<i>commission des filières</i>) organizes discussions about the terms of service and requirements imposed on eco-organizations.
System of monitoring	Producers and operators are overseen by “eco-organizations” and, in the case of the operators of installations classified for the protection of the environment (ICPE), by the state. The eco-organizations are audited annually; and their finances, audited by state authorities.
Graduated sanctions	In cases of violation, the administration sends a warning by mail to the producers concerned. A fine might be imposed. An eco-organization might be fined €30 million or stripped of its certification.
Procedures for settling conflicts	Conflicts are settled via legal actions in court.
Recognition by authorities	Public authorities make the decisions about releasing the terms of services and certifying eco-organizations.
Nested rules and institutions	Several EPR groupings by type of wastes exist, all of them governed by a committee (<i>commission des filières</i>). Several EU member states have such groupings.

This public-private governance ensues from the absence of any commoners who spontaneously claim responsibility for waste management.⁽⁸⁾ Public authorities have to appoint the commoners.

Wastes as a resource, another model of the commons

The aforementioned differences lead us to think that WEEE is a “potential commons” that has to be created — an “*unknown commons*” (BERTHET 2013) in the sense that everything needs to be done. Commoners have to be appointed by authorities, and the value inherent in the wastes has to be realized through a group effort for processing the wastes, extracting value from them and innovating.

As a consequence, the EPR system in France enables us to imagine another model of the commons that, instead of being set opposite government actions or market activities, is based on a rationale of COREGULATION whereby the “commoning” of WEEE is related to a policy negotiated by producers, public authorities and other stakeholders. This new commons takes the

⁽⁸⁾ By waste management, we mean, of course, a “responsible” management of wastes and not an opportunistic, informal recuperation of wastes outside the scope of social and environmental regulations.

form of a government policy technique. It does not arise out of a cause or from the demand of economic agents who lay claim to a resource. In the case at hand, the commons is a means for state regulation. Given the absence of commoners however, the state has to appoint the persons to be in charge and institute a form of governance for the WEEE commons.

For political authorities, the interest in instituting this commons is that “*Although the commons is not necessarily a matter of consensus [...] once formulated (in an assembly, meeting at work, planning group) [...] it cannot be brushed aside with a wave of the hand. Once on the table, its importance can be discussed; its priority, questioned; its grounds, contested [...] Common goods do not dispel conflicts, they furnish them a line of dynamic tension*” (CORDONNIER 2012, p. 6). A commons leads us to recognize what is shared, to discuss and protect it; it is a space of power struggles (LEYRONAS & BAMBRIDGE 2018).

So, to complete Ostrom's principles for the governance of common pool resources and adapt them to WEEE, principles have to be added about creating what is “commoned”, designating the group involved (the commoners) and forming a collective organization with a mission and governing structure that involves all stakeholders (MICHEAUX 2017).

Regulating wastes as a commons: How to make improvements?

The coregulation model of EPR groupings in France is not above criticism, and will doubtlessly undergo improvements in the coming years.

In the case of WEEE, many criticisms have already been voiced. Planned obsolescence is a recurrent reproach made against electronic products and appliances for the general public. Consumers have little confidence in manufacturers. According to a poll by the Institut National de la Consommation (INC), nine out of ten people in France think that obsolescence is indeed planned.⁽⁹⁾ Recent measures in favor of products with a longer life cycle are not always applied, and consumers are often unaware of them.⁽¹⁰⁾ According to a DGCCRF survey, the measures adopted by professionals have been inadequately implemented.⁽¹¹⁾

Meanwhile, given that electronic wastes contain potentially valuable substances (as in chip cards) as well as highly dangerous substances (e.g., plastics with bromine in flame retardants), engineers in the WEEE grouping have been busy. Reusing recycled plastic is now the subject of several research programs. To cite a successful example: SEB, Veolia and Eco-Systèmes-Récylum have pooled their know-how to set up a full loop in the circular economy for small household appliances.⁽¹²⁾

As for the future and governance of EPR groupings, a report drafted as part of the Circular Economy Roadmap (FREC) was published in March 2018. Its conclusions served as the starting point for the bill of law on the circular economy (introduced in June 2019). Jacques Vernier (2018), the rapporteur, has drawn attention to the fact that the system of coregulation strays when the parties involved do not assume collective responsibility. His remarks were based on the example on another EPR grouping (“special and scattered wastes”), which has been paralyzed by persistent conflicts about the terms of service. In contrast, the proactive approach of the eco-organizations in the WEEE grouping has been acknowledged (European Commission 2017).

How to provide more incentives on the individual level and develop solidarity on the collective level? Let us refer to Ostrom’s principles, which shed light on an effective, sustainable governance. In the case at hand, we notice that not all these principles have been upheld.

⁽⁹⁾ See: “Les nouveaux pièges de la conso”, *60 millions de consommateurs*, special issue 173, June 2014.

⁽¹⁰⁾ Act n°2014-344 of 17 March 2014 on consumption; Act n°2014-856 of 31 July 2014 on the social and solidarity economy; Act n°2015-992 of 17 August 2015 on the energy transition and green growth.

⁽¹¹⁾ DGCCRF (Direction Générale de la Concurrence, de la Consommation et de la Répression des Fraudes). See: <https://www.economie.gouv.fr/dgccrf/information-des-consommateurs-sur-garanties-et-disponibilite-des-pieces-detachees-controle>

⁽¹²⁾ Veolia (2016), “Le Groupe SEB, Veolia et Eco-Systèmes créent le premier partenariat industriel pour le petit électroménager recyclé en France”, press release of 5 February 2016.

Principles but party upheld

UNGRADUATED SANCTIONS: When a certified eco-organization does not comply with its terms of service, the EPR regulatory framework foresees sanctions, but these are far from graduated. According to Vernier (2018), existing sanctions for eco-organizations are lacking in proportionality: in the main, a fine of €30,000 (a paltry sum when the income of an eco-organization like Eco-Systèmes-Récylum amounts to more than €100 million) or a suspension (or even cancellation) of its certification. Given the place now occupied by eco-organizations and their accumulated experience, it is hard to break a contract or radically modify it. Besides, the law has not foreseen the replacement of an eco-organization. Case law consists of a single case involving the nonrenewal of certification, but it has clarified a few points about the already collected “eco-contributions”. For Verdier, the revocation of certification is an “atomic” sanction. Another criticism made by the rapporteur of the bill of law is that no sanctions have been foreseen for not reaching the objectives set in the terms of service. To make up for this, he has recommended introducing monetary sanctions, as in the energy sector, where objectives have been set for saving energy along with penalties for each extra kWh sold.

THE ABSENCE OF FAST, CHEAP PROCEDURES FOR SETTLING CONFLICTS: The disputes, past or current, that have set some eco-organizations at odds with local authorities or with the processors of wastes have not been settled either fast or cheaply — as clearly shown in the previously mentioned example of repeated legal actions about the conditions of waste collection.

The government’s proposals

Measure 28 in the FREC roadmap tries to make up for these shortcomings. It seeks to “*refund the pact of confidence of EPR groupings in order to make more room for eco-organizations while reinforcing the state’s means of control for seeing to it that objectives are reached*”. For this purpose, measure 28 lists six points, among them: simplify the regulatory framework so that requirements are tied to objectives; apply effective financial sanctions and incentives when objectives are not met; activate the means for effective controls; foresee the measures to be undertaken when the certification of an eco-organization that holds a monopoly is withdrawn or discontinued. These measures will increase the influence of the EPR governing structure by providing it with a better graduated set of sanctions. Financial sanctions that are actually dissuasive could then be systematically applied, and the threat of losing certification following repeated violations would have clout.

As for the settlement of conflicts, Jacques Vernier (2018) has suggested creating an independent administrative authority funded by eco-organizations and the firms that have set up their own systems. This authority would have a committee that could apply sanctions using the new graduated system. Though not adopted as such by FREC, this idea is at the origin of a point figuring in measure 28, namely: the need to “*mobilize the necessary means for investigating requests for certification, monitoring them and exercising effective control*”.

In the tracks of the FREC roadmap, the government introduced, in early June 2019, a bill of law on the circular economy and the fight against wastes.⁽¹³⁾ Its provisions about controlling and sanctioning eco-organizations have been worked out. The government has opted for an executive order instead.

To clarify the status of eco-organizations and alleviate conflicts, another idea emerged from interviews with one of these eco-organizations: grant these organizations a special status and reassert the mission of general interest as their finality. This proposal falls in line with the PACTE Act on the growth and transformation of firms. Article 176 of this act opens to profit-with-purpose corporations the possibility of “*publicizing their qualification as a ‘firm with a mission’*”.⁽¹⁴⁾ Companies that want to do so may formulate in their statutes a mission with positive measurable effects on society and the environment. Five conditions have been laid down for obtaining this qualification. One of them is to set up a “mission committee” for monitoring and verifying observance of the mission. An independent third party is to verify whether the objectives are fulfilled.

For eco-organizations, this would mean setting up a multiparty committee for grouping all stakeholders for periods of certification. This committee would be the

⁽¹³⁾ <http://www.terraqui.com/blog/wp-content/uploads/2019/06/Projet-loi-economie-circulaire-5-juin-2019.pdf>

⁽¹⁴⁾ This idea came from a report (NOTAT & SENARD 2018) based on the results of a work group that sought to theorize the concept of a “firm with a mission” (SEGRESTIN *et al.* 2015).

place where criticisms are voiced and conflicts settled. It would be a “fast-track” for settling differences before ultimate recourse to a court of law, a procedure that necessarily lasts longer and costs more.

The principles of coregulation

To see to it that changes in the future will not adulterate the system for organizing wastes as a commons, let us conclude by identifying the elementary principles for a theory of coregulation, principles parallel to Ostrom’s (cf. Table 3).

The first three principles have to do with creating what will constitute the commons and with forming the group of collectively responsible “commoners”. The fourth principle is about choosing a key player for seeing to the pursuit and renewal of the commons. The fifth emphasizes the centrality of a collective organization that orchestrates stakeholders’ activities. The last two principles focus on the possibility of modifying the system and on the need for sanctions. They were already present in Ostrom’s work. Here however, the accent is shifted toward the legitimacy of interventions by public authorities and the dynamics of the system so as to foster group learning.

Given this theoretical model of coregulation, we could imagine transposing it to other societal problems in which collective action encounters diverse interests in situations where the concerned parties do not spontaneously assume responsibility.

Creation by partners (the state, firms, etc.) of what is to be held in common and of the group of “commoners”	<ol style="list-style-type: none"> 1) Depending on their qualifications, parties are appointed to be collectively responsible for responding to a problem of general interest. 2) The process of creating a sense of responsibility opens with a first, exploratory phase and negotiations between partners. 3) Responsibilities are then shared and formulated by the assignment of a “mission” that states the objectives and commitments made by both sides.
The formation of a collective organization with a mission	<ol style="list-style-type: none"> 4) The mission may be delegated to an organization that will act in the name of its members and seek to retain their support. 5) This organization’s governing structure involves all stakeholders and can exercise influence over the making of the rules to which it is subject.
The possibility of overhauling the model and reinforcing interventions by public authorities	<ol style="list-style-type: none"> 6) The mission and objectives assigned to the organization may be modified depending on the results and problems, and as a function of the objectives set by public authorities. 7) Interventions by public authorities might be necessary if this form of self-organization drifts from its purpose (proven opportunistic behaviors, the missing of objectives, the presence of “free-riders” whose activities menace the collective action).

Conclusion

Thanks to the analogy with the commons, we see that considering wastes as a potential resource to be tapped implies setting up a collective governing structure grounded on shared rules. What is special about wastes as a (potential) commons is that there are no “natural commoners” ready to address the problem of wastes. The state has to create this “community” by holding producers responsible for the products they have brought to market once these products reach the end of their life cycle. Since producers have not been able to act on their own, eco-organizations are there for the followup. As responsibility has thus been transferred, the missions assigned to eco-organizations have expanded. We now expect these organizations to move beyond managing the end of product life cycles and toward fostering innovation so as to turn wastes into resources while taking responsibility for distributing the value thus created among the companies belonging to EPR groupings.

Despite the increasing qualifications and competence of eco-organizations, the state should not withdraw from this sector. On the contrary, even though the EPR principle has significantly affected waste collection and processing, changes are still needed to provide more incentives on the individual level and more solidarity on the collective level. The literature on the commons has revealed the need for both graduated sanctions and procedures for a fast, low-cost settlement of conflicts. The state’s role is to supervise, monitor, control and modify the terms of service that define the mission of this commons.

Unlike a traditional commons outside the state and the marketplace, wastes as a commons is based on a form of coregulation between public authorities and eco-organizations. In this mixed form, the state tries to make private parties responsible through an evolving institutional framework of regulations and negotiations where economic agents may freely propose new solutions. This coregulation relies on the synergy set off by making these agents responsible through continual interactions with state authorities. This mixed model is intended to stimulate a collective action that, based more on cooperation than competition, will create value.

Thanks to this model, we imagine a new type of commons as a policy technique for government, as an original sort of state interventionism in line with the principles enumerated. This model has characteristics that make it worthy of consideration for managing other complex problems, when classical forms of regulation are unable to generate an innovative collective action organized around ambitious societal objectives.

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