



## **Assessing the performance of the Delegated Management of Household and Similar Waste in a perspective of sustainable development: Casablanca city as case study (Morocco)**

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### **Abstract**

The delegation of public services of household and similar waste, decided by Casablanca's Urban Commune in March 2004, aims to improve the performance and the management tools through partnerships between public and private operators. However, adopting a purely technical management approach which is restricted to the control of collection and cleaning operations, or a purely economic approach that focuses only on cost recovering have proven their limits. Our delegator must implement a delegated management that is viable economically, environmentally and socially acceptable. Therefore, the need for sustainable development indicators to assess the performance of the delegated public services of household and similar waste is required. Thus, the main goals of our research are: (i) to provide a dashboard responding to the local need for the performance assessment of the delegated public service of household and similar waste, (ii), to implement a coherent system of indicators of sustainable development, reflecting the main performance expected by the delegating authority, and (iii) to constitute a Performance Composite Index to assess the delegated public service of household and similar waste, and this with a view to establishing a delegated management administered by the concept of sustainable development and to instituting a territorial governance of this vital sector.

## **1. Introduction**

The management of solid waste is a major environmental challenge facing Morocco, which has a total population of approximately 33 million inhabitants producing nearly 5<sup>1</sup> million tons of household waste per year, with a ratio of 0.76 kg per capita and per day. The collection rate is around 70% and the rate of production varies from a few dozens of tons per day, for small communes, to several thousands of tons per day for large communities. In effect, the production of household waste at the level of the city of Casablanca reaches approximately 3000 tons/day [1], which represents almost one quarter of the total production of waste in urban areas across the country, namely 11000 tons/day, which causes many difficulties for the public authorities at the level of their management [2].

To cope with the lack of infrastructure and a lack of adequate systems of collection and cleaning, which impacts the environment and the living conditions of the populations, moving to a delegated management of collection services and cleaning was decided by some Moroccan urban communes. These latter have opted for this mode of management in order to implement an effective management of their household and similar waste according to law No. 54-05, relative to the delegated management of public services, which structures the projects of concessions for the benefit of local communities, their institutions and public institutions in order to drain and to encourage investment in this area. That law defines the delegated management as follows: "The delegated management is a contract by which a legal person of the public law that is called 'delegator' who delegates, for

<sup>1</sup> Rapport de la Banque Mondiale N° 47535-MA, 24 février 2009, Département du développement durable, Région Moyen-Orient et Afrique du Nord, Prêt de Politique de Développement du secteur des déchets au Maroc, p1.

a limited period of time, the management of a public service of an economic nature where they still retain the responsibility, to a legal person be they public or private law, called the ‘delegatee’ recognizing their right to benefit from a remuneration or to make profits on the agreed management”.

Established in Morocco since a dozen<sup>2</sup> of years only, the delegated management of household and similar waste does not stop to cause controversy. Casablanca, the economic capital of Morocco is a perfect example: even if its urban commune has delegated to private operators<sup>3</sup> the management of household and similar waste since March 2004, the collection of household waste is still not mastered and the most populated city in the country is reeling always under the waste and does not have tools for integrated management of this vital sector. More than ever, its local public actors are forced to draw up an evaluative balance sheet of their experiences of delegated management of the public service of collection and cleaning in order to fill the gaps which evade the success, and they must opt for a management approach adapted to the characteristics and constraints of the territory they serve. This work is done, in concertation with the main stakeholders that influence the sphere of management of household and similar waste as well as enrolling in a sustainable development perspective.

### *1.1 The issues of the problem*

This article deals with the context of the city of Casablanca regarding the assessment challenges of the delegated management performance of household and similar waste, in its component of collection and cleaning within a sustainable development perspective.

Three parts structure our Text: the first, puts in perspective the concept of management of household and similar waste, and highlights the main issues related to the municipal management of solid waste. The second, outlines the constituent modules of the dashboard and details the chosen performance criteria and the assessment indicators of the performance of the delegated public service of household and similar waste. The third part analyzes the structure and the feasibility of the performance assessment indicators, in an analytical and inclusive perspective at the scale of the studied local community. Finally, the last part presents the main conclusion of this work and opens the way on new prospects for a comparative assessment of the delegating authorities performance at the national level.

The solid waste management is a challenge mainly for the authorities of the cities in developing countries, and this is due to the growing generation of waste, the weighty burden on the municipal budget caused by the high costs associated with its management, the lack of understanding of the diversity of factors which conditioned the different steps of the management of waste and necessary links that allow the smoothness of the whole system operation [3]. The waste management involves a large number of different actors, with different areas of interest. They all play a role in the management system of a city, but it is often the sole responsibility of the local authorities [3].

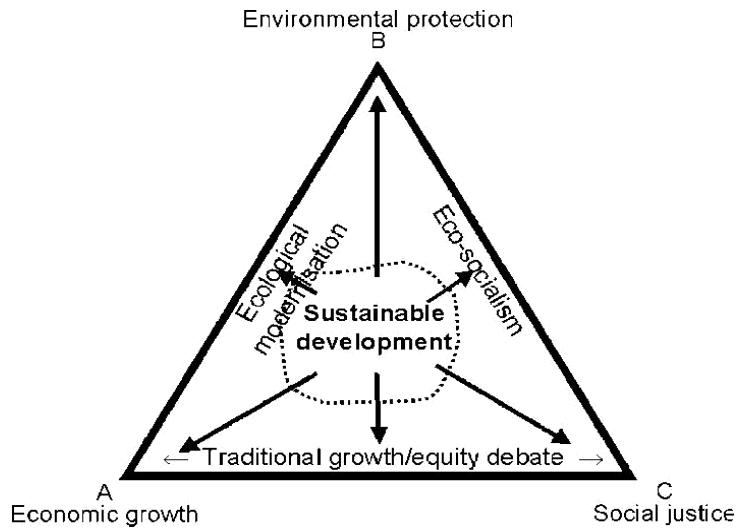
The municipal waste management is an environmental priority which is an important element of the sustainable development of cities [4]. However, it appears as a complex problem with economic, environmental and social impacts [5], and in order to be sustainable, a municipal waste management system must be economically affordable, respectful of the environment and socially acceptable [6]. In this regard, sustainable development should be considered in its multidimensional concept, based on the reconciliation of economic, social and environmental issues and to recourse to the dimensional approach of sustainable development that allows to apprehend the three traditional dimensions of sustainable development, that is to say the environment, the economy and society as well as their possible overlaps (environment-economy, economy and society, environment-society). The approach by dimension is focused on looking for a balance between the developments of these three dimensions, which complies with the consensual conception that appears in the dominant political discourses [7]. This dimensional approach of sustainable development presents the advantage of being simple and understandable to a broad range of actors and potential users. It is easily applicable to different scales [8].

For this reason, any interpretation of sustainable development can be located inside a triangle (Figure 1) whose angles would represent the extreme favoring views: (a) economic development at the expense of equity between generations and of the environmental costs incurred; (b) the protection of the environment at any price and (c) the search for equity between the generations in respect of the economic and environmental conditions [9].

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<sup>2</sup> The Moroccan experience remains relatively young and the first delegated management contract for waste collection, dating back to 1997, was signed by the Commune of Hay El Hassani in Casablanca.

<sup>3</sup> Following an international tender lunched by the Urban Commune of Casablanca, two Contracts have been respectively awarded to Tecmed Maroc; Sita Maroc and Segedema (March 2004- February 2014) and to Averda Maroc and Suez Sita Maroc (March 2014-February 2021).



**Figure 1:** Dimensional mapping of sustainable development (Connelly, 2007)

Theoretically, the sustainable development would therefore be at the center of the triangle, failing to calculate this point of balance and also build an absolute standard of sustainable development, the latter would simply be an ideal goal to orient the political initiatives in function of their initial position in the triangle. According to this principle, we could therefore situate all the municipalities in a triangular field depending on their concerns and environmental, social and economic performance. The most durable of them would be those that tend toward the center of the triangle and that integrate both the socio-economic and environmental concerns [9].

To pursue sustainable development objectives, an indicator allows to structure and present the information and the socio-economic issues and essential environmental as well as their trends for a given territory. Much more than a simple description of these issues, an indicator is a tool of synthesis and interpretation of data [10]. In this regard, it allows to estimate the nature and intensity of the links between environment and anthropogenic activities while assessing the change due to the path of development chosen by our societies [10].

Sustainable Development Indicators (SDI) are therefore for any researchers, politicians, citizens and decision makers, an essential tools of communication that allows to account for changes and discern the consequences of the action or inaction [11]. Their main objective is to provide a comprehensive assessment, in a short and long term perspective, of the link between society and nature so that to assist decision makers in the appreciation of the actions, to undertake or not, to ensure driving the society toward a sustainable development [12]. The application of the principles of sustainable development at the national and regional levels is a procedural approach, its dimensions being then declined according to a more specific guidance, defined by actors pursuing a shared general interest [13]. Equally, the implementation of sustainable development at the subregional level is the responsibility of a concerted approach, built on the basis of compromise, in response to the specific interests of actors. The issues of sustainable development are then declined in consensual action, adapted to the particularities of their territory and to the objectives and practices of local actors [13].

In the academic literature [13], the term of sustainable development indicators has been widely used: although defined as quantitative or qualitative variables describing the initial state of a given situation, the objectives to be achieved or the actions to be taken to achieve it, they reflect very different realities.

On the one hand, the indicators do not refer always to the same object: they can bring on a portion of the territory, we will talk then of territorialized indicators or deal with a sector of human activity in connection with a specific approach of sustainable development, we will talk then about sectoral indicators. On the other hand, the architecture of the indicators can take a variety of forms, ranging from the index (synthetic indicator) to the dashboard (system of indicators).

Sustainable Development Indicators are our chosen tool for the performance assessment process of the delegated public service of household and similar waste in Casablanca's territory. However, it goes without saying that the concept of performance, applied to the public sphere, is not easy to identify with precision [14]. Several work tried to approach it, through defining the frameworks and registers reference and the susceptible criteria that may be most appropriate [15]. Particularly, the first ambiguities to raise concern the articulation between the overall level (the entire society) and the organizational level (the considered public actor) of the intended performance.

However, it is difficult to define what constitutes the performance and measure the improvements [16]. The dimensions of the performance can be classified in two broad categories: (a) The results characteristics of

activity related to the provision of the service and, (b) the characteristics related to the use of these results and to the obtained results. The first include: the quantity, quality, cost, effectiveness and efficiency. The Seconds include: the rates of use, the availability, the access, the responsiveness, the accountability and the distribution (e.g, priority to the equity and poverty), in order to mention only the most frequent [16].

The performance measure seeks to identify the appropriate and achievable measures for those performance dimensions, which can vary considerably in fonction of the type of the activity related to the provision of the service, to the measure difficulty, to the indicators availability and deadlines of the framework in which the evaluation takes place [17].

The improvement and the measurement of performance must also consider external factors, which do not fall within the provision activity of the concerned service[18].These factors may be relatively simple, such as the availability of funds in a given budgetary cycle, or they can be more complex and systemic, as the magnitude of the Patronage and the elite power in the State-Society relations. These latter factors of political economy are a complement particularly important in the performance measurement, the political constraints and problems of incitement could likely to delay the improvements in the service provision [19]. The important constraints are not the subject of unanimity however. Some researchers are interested in the level of political competition at the local scale, defending that in truly democratic circumstances, the representatives have all the reasons to provide the necessary services if they want to avoid to be excluded during the next elections [20]. Others however arguing, that the participation of citizens and their cooperation with the political responsibles are the main factors for the improvement of the performance [21]. It is also important to determine which segments of Citizens influence the decisions, the effectiveness of the decentralization of the service provision is in large part determined by the extent in which the local elites get benefits [22];[23].

In the performance apprehension perspective of the public service related to the management of waste in a sustainable development perspective, there is a growing interest from the part of managers to adopt a sustainable waste approach of the management of waste, and to integrate strategies that will give rise to the best possible option of management [24]. A task that turns out to be quite difficult, because it is essential to consider the economic, technical and normative aspects within giving particular attention to environmental issues. The decision-makers, in charge of the planning and development of the policies, need to be well informed on the situation of the cities, which will help them to develop integrated strategies of waste management and which are adapted to the needs of citizens by taking into account their ability to pay for these services [3].

If we take the case of Morocco, we finds that in spite of the legal and institutional provisions and in spite of governmental and local policies, the waste management reform faces many difficulties in its application. The non-observance of the contractual clauses by the delegated Companies causes problems related to the collection, transportation and for waste discharge process but also on the cleaning up (scanning, sand-removal and weeding) of public roads, in addition of the problem related to the overflowing bins and to the non constructible sites which serve as wild deposits [2].

In our sens, adopting a purely technical approach that is limited to operations and cleaning control, or adopting a purely economic approach that is focused on the costs recovery, is no longer sufficient. It is a must to opt for other components and look for a complementarity alloying to the economic, the environmental and social, spacially knowing that environmental and social concerns generate a growing territorial interest. Thus, the Local public actors have the need for adapted sustainable development indicators in order to know the strengths, weaknesses and issues of their territory, and to assess the relevance of the actions undertaken in terms of household management and similar waste, in its component relating to the collection and cleaning so that to adopt a delegated management mode which is economically viable, environmentally conscious and socially tolerable.

## 1.2 *The issue*

Facing the lack of national references and case studies applied to the African context, which propose indicators and analyze the performance in the specific sphere of household and similar waste management in a sustainable development framework, our research work aims to be a contribution in this field of research within proposing a performance indicators allowing the assessment of the performance of the delegated public service inherent to the collection of household and similar waste and cleaning while advocating a territorial approach, and would primarily follows the works of Bertolini [25] that proposes a dashboard to assess the local public service of waste in France in order to measure the progress of a community in the area of waste management and to establish comparisons between several communities, and wants to register in the lineage of the work of Wilson and al. [26] who propose indicators allowing a benchmark between cities characterized by different levels of income, and by different managerial practices of solid waste management from each other.

therefore, we quested for sustainable development indicators which allows the local community, represented in our case study by the Urban Commune of Casablanca, to evaluate the performance of the delegated public service, related to the collection of household and similar waste and the cleaning at the scale of Casablanca city in order to establish a sustainable management of this vital sector. The main objective of our study is to propose a performance indicators to assess the delegated management inherent to the public service of household and similar waste in Casablanca, within a sustainable development perspective. Each dimension of the sustainable development, environmental; economic and social will be expressed by key indicators whose the implementation is essential in our performance assessment process of the delegated public service related to household and similar waste at the scale of the studied territory.

Our study has a triple objective: i) propose a dashboard, responding to the local need for the performance assessment of the delegated public service of household and similar waste, ii) implement a coherent system of sustainable development indicators, reflecting the main performance expected by the Urban Commune of Casablanca, and (iii) constitute a Performance Composite Index to assess the public service of household and similar waste . It is meant to suggest a tool for the assessment of the sustainable performance of the delegated public service related to the management of household and similar waste, which would serve as a decision support tool for the local authorities, an original view not yet developed.

## 2. Materials and Methods

Our assessment approach of the local public policy, related to the delegated management of household and similar waste at the studied territory level, is based on a dual analysis: on one hand, a quantitative analysis, allowed with the sustainable development indicators which will enable us to measure the expected performance, and, on the other hand, a qualitative analysis based on a qualitative study relied on a sample unique case, and conducted on the basis of semi-structured interviews, particularly with the top management of the delegating authority of the studied territory.

The qualitative study relates to the action-research since the action on the ground was a source of cumulative knowledge of ten years of experience; as an actor connoisseur of the reality of the delegated management of household and similar waste at the level of Casablanca city as an Operation Engineer having managed the interface between the delegating authority, the Urban Commune of Casablanca, and one of the main delegates of the collection waste and cleaning in Casablanca ,Tecmed Morocco, and of the lessons learned from this professional experience that allowed me to deepen my research, to constantly enrich my reflections with determined target of improve the current situation.

This work methodology has allowed us to validate respectively the retained orientations and the developed approaches and to apply the proposed approaches and principles while relying on a bibliographic research which is intended for the collection of a maximum of data necessary to identify the main components relating to the delegated management of household and similar waste, to the sustainable management of solid waste, to the performance and the performance indicators, and this, in addition to a field work targeting the main stakeholders of the studied field, which is based fundamentally on interviews with key officials of the delegating authority, and with the delegates who have agreed to maintain a dialog on the studied and discussed theme despite the sensitivity and criticality expressed.

## 3. Results and Discussion

Our research work aims to propose a dashboard responding to the local need for the performance assessment of the delegated public service of household and similar waste, to implement a coherent system of sustainable development, reflecting the main performance expected by the Urban Commune of Casablanca, and to constitute a Composite Performance Index to assess the public delegated service of household and similar waste so that to establishing a delegated management administered by the concept of sustainable development sub-hearding the institution of a governance of this vital sector.

The dashboards appear the instruments of control that allow to ensure, from quantitative and even qualitative indicators, the compliance with the contractual clauses and of the good execution of the delegated service, given that the traditional tools of management control (analytical accounting, budgetary control, statistical Prospective studies ...) are not adapted. In addition, the management control is based on the highlighting of policy objectives and operational management to which the delegation must respond [27]. The only difference between a dashboard and a synthetic index concern the final stage of the process of construction and for the measurement of indicators: the production of a unique synthetic value intended to condense the information

contained in the instrument panel, from the basic indicators. An indicator is therefore an observable variable used to account for a non observable reality. As for the index term, it designates a synthetic indicator built in aggregating other indicators so-called basic. Most of the indicators used in the framework of public policies are in reality Indices [7].

Our research work aims to propose a tool for the assessment of the overall performance of the delegated public service of household similar waste, which will serve as decision support tool for the Urban Commune of Casablanca, since it will serve as a case study and the receptacle of experimentation, and which would be adaptable to the specificities of each delegating authority at the level of Morocco. Our dashboard is articulated around the concept of sustainable development, in its dimensional component, and appropriates as major Modules: the institutional and legal Module, the Economic Module, the Environmental Module and Social the Module. Each Module is expressed by qualitative performance criteria and then translated into performance indicators. The weighting of the retained performance indicators will allow us to obtain a Composite Performance Index.

### *3.1 The constituent Modules of the Dashboard*

#### *3.1.1 Institutional and Legal Module*

The performance criteria selected are: the strengthening of the institutional and legal framework, the structural planning, regulatory compliance and the compliance with the contractual clauses, participative democracy, good governance and finally the commitment of the State for the development of the sector of household and similar waste.

##### *3.1.1.1 The strengthening of the institutional and legal framework*

The legal and institutional framework, relating to the management of household waste in Morocco, has been judged, by number of international instances<sup>4</sup>, as insufficient and limiting the effectiveness of the governance of the sector. The implementation of additional legal; regulatory and institutional measures, through the establishment of new decrees promulgated and under the law 54-05 and under the law 28-00, and through the establishment of the Provincial Director Plan of Management of household waste as Regional declination of the National Program of household waste, will allow to improve the governance of the sector and to eliminate any overlap and/or lacke in the decision-making structure and regulatory framework relating thereto.

The number of decrees promulgated under the law 54-05 and the number of decrees promulgated under the law 28-00, as well as the development of a Provincial Master Plan for the management of household waste are the respective indicators considered.

##### *3.1.1.2 Structural Planning*

The urban communes or the grouping of communes, who opt for the delegated management and entrust as well the collection and cleaning of their household and similar waste for private delegators, do not have in their majority a specific service in charge of the monitoring. As well, in order to compensate for any failure in the organizational structure responsible for the follow-up of the delegated service, and in order to set a transparent structural planning, the establishment of a specific service, affiliated to the delegating authority, whose main mission is to ensure the monitoring of the delegated public service and to ensure the interface between the delegating authority and the delegatee, is required.

Thus, the implementation of a specific service in charge for the control and monitoring of the delegated management of household waste at the level of the urban commune of Casablanca, constitutes a performance indicator declining this performance criterion.

##### *3.1.1.3 Regulatory conformity and compliance with the contractual clauses*

The requirement of a ISO 9001 certification, as an integral clause of the contract governing the delegation of the public service of the collection of household and similar waste and cleaning, provides to the delegatees a framework which allows a systematic approach in the management of their processes so as to regularly offer a service that meets the expectations of their client (urban commune or grouping of municipalities).

The compliance with the contractual clauses by the delegated of the service is a overriding factor conditioning the success of any public service delegation. Any significant breach involves penalties that the delegating authority imposes to the delegatee, and may cause in extreme cases the suspension of the Convention which

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<sup>4</sup> Rapport de la Banque Mondiale N° 47535-MA, 24 février 2009, Département du développement durable, Région Moyen-Orient et Afrique du Nord, Prêt de Politique de Développement du secteur des déchets au Maroc, p1.

governs the service delegation.

Thus, the rate of compliance of the delegated service compared to the contract specifications is a major indicator that allows to control the execution of the public delegated Service provisions in accordance with the requirements of the contract prescriptions.

#### *3.1.1.4 Participative democracy*

The definition of stakeholders, in a framework of transparency, will help to clarify the role of the main actors as well as the nature of the relations that are being forged between them, and who will influence and determinate the mode of governance of the public-private partnership which governs the delegation of public service inherent to household and similar waste at the territorial scale. It should be noted that the main stakeholders which constitute the sphere of influence in the matter are: the urban municipalities, the grouping Communes, Wilaya of Casablanca, the Ministry of the Interior, the delegatees, the Ministry of the environment, the NGOs and the local elected representatives who have the responsibility to express the needs of citizens.

In this regard, the number of partnership projects carried out, per year by the main actors constitutes the overriding performance indicator retained.

#### *3.1.1.5 The Good Governance*

The second Earth Summit of 2002 in Johannesburg recognizes the local level as the most appropriate level to embody the actions of sustainable development, and speaks directly to the local communities, which are managed administratively by the municipalities or cities, to evolve their own local Agenda 21; with effective implementation of chapter 21 relating to the management of waste; in order to translate concretely the sustainable development.

As such, the development of a local Agenda 21 pleading for an effective application of Chapter 21 constitutes the retained performance indicator.

#### *3.1.1.6 The State commitment for the development of the sector*

Reforming the sector of household waste in Morocco is conditioned by the commitment expressed by the State for its development. The World Bank in its report<sup>5</sup> states that "in Morocco, expenditures of municipalities in the management of household waste are usually covered by the general budget of each city. The General Directorate of Local Communities (DGCL) has recently created a support punctual mechanism from whose some of the major cities may avail themselves, within the framework of an allocation of a discretionary part of VAT under the supervision of the Ministry of the Interior, and which allows them to partially cover the first 2-3 years of outsourcing these services to a private operator. However, the ad hoc nature of these transfers prevents the municipalities to rely on them for the long-term development of the management Service of household waste.

As such, the respective measure of the evolution State subsidies allocated to local communities and of the evolution of public allowances paid to this sector constitutes a major indicator permitting to check the involvement of the State in the process of improving the management of household waste at the regional and local level.

### *3.1.2 The Economic Module*

The performance criteria selected are: the integration of the pre-collection in the collection process, the establishing of development patterns of household and similar waste valorization supply, the establishment of sorting and valorization waste supply and their integration into an economically viable system, the mastery of the management costs of the delegated public Service, the efficiency of the collection service, the efficiency of the service of cleaning up and finally the costs recovery of the management of the delegated Public Service .

#### *3.1.2.1 The integration of the pre-Collection in the Collection process*

The cities which contain several areas of informal habitats, and who do not have road infrastructure and/or solid sanitation, and in which a large population lives permanently sometimes, should benefit from an appropriate treatment of collection; cleaning; evacuation and conditioning solutions of household and similar waste adapted to their needs which avoiding the accumulation of waste in-site and it dispersion in surroundings.

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<sup>5</sup> Rapport de la Banque Mondiale N° 47535-MA, 24 février 2009, Département du développement durable, Région Moyen-Orient et Afrique du Nord, Prêt de Politique de Développement du secteur des déchets au Maroc, p13.

Thus, resorting to a containerization adapted and sufficient in number and volume is required to facilitate the pre-collection, and allow if possible to load the waste collected by collection trucks of delegates. Consequently, the number of containers installed in areas of informal habitats collected daily by the collection teams is the used indicator.

However, to implement the aggregation points necessary to the realization of the pre-collection operation and make the necessary adjustments to facilitate access and use to it, the concentration of the inhabitants of the concerned area proves to be judicious.

#### *3.1.2.2 The establishing of development patterns of household and similar waste valorization supply*

The public-private partnership, in the framework of the delegated management of household and similar waste, is called to consider the valorization of household waste as a fundamental stage to a sustainable and integrated management of waste at the territorial level, and the main stakeholders have the responsibility to work for the establishing of a development patterns for household and similar waste valorization supply, to sponsor the pilot experiments, specifically those relating to the sorting at the source, and to sign the conventions that embody and concretize the initiatives and efforts undertaken in this regard.

Thus, the number of conventions signed, with the delegates for the sorting and valorizing of household and similar waste constitutes the performance indicator retained.

#### *3.1.2.3 The establishment of sorting and valorization waste supply and their integration into an economically viable system*

The establishment of sorting and valorization waste supply rhymes with the implementation of measures to economic order which guarantee the success of any approach to this level. The financing instruments such as eco-taxes and royalties would allow the obtainment of tax revenue which would be allocated to the financing of pilot projects approved by stakeholders. So that, the annual revenue of sorting and valorization waste supply constitute the performance indicator retained.

#### *3.1.2.4 Mastering the costs management of the delegated public service*

The remuneration of the Delegates by the delegating authority is calculated monthly on the basis of household and similar waste collection datasheets, on kilometers cleaned manually and mechanically and finally on mechanically washed kilometers. However, while the remuneration for the cleaning service is characterized by a fixed-rate remuneration, the collection service is remunerated on the basis of the collected tonnage datasheets which is calculated respectively from the daily and monthly tonnage datasheets.

The cost of managing the delegated public service is conditioned by the development of the economic and technical conditions which essentially govern the collection process and which will impact the cost per ton and its evolution. This justifies the choice of cost per ton as a performance indicator.

#### *3.1.2.5 The efficiency of the collection service*

The respect of contractual clauses governing the process of collection, and that are relating specifically to the respect of frequencies and circuits of collection which must be approved by the delegator, involves the realization of an effectiveness rate of collection approaching 100%. Any breach of those requirements, then qualified as non-compliance, involves the non-achievement of the required objective of efficiency. In this regard, the rate of effectiveness of the collection process is the chosen performance indicator.

#### *3.1.2.6 The cleaning services efficiency*

Likewise, the compliance with the contractual clauses governing the process of cleaning, and that are relating specifically to the respect of frequencies and circuits of cleaning which must be approved by the delegator, involves the realization of an effectiveness rate of collection approaching 100%. Any breach of those requirements, then qualified as non-compliance, involves the non-achievement of the required objective of efficiency. For this reason, the rate of effectiveness of cleaning is the retained performance indicator.

#### *3.1.2.7 Cost recovery management of the delegated public service*

The success of the delegated management experiences in Morocco, that are related to the solid or the liquid sewerage, is conditioned by the recovery of the related management costs. In this regard, Moroccan State has received a development loan policy, for the sector of household waste, from the World Bank to support the Moroccan Government in the implementation of its program of reforms for the improvement of its financial performance among other things. In this respect, and on a regional and local scale, opting for the increase of revenues generated by the tax of municipal services in local communities, as a support-result within the

framework of the National Program of household waste, while ensuring an effective imputation of the generated revenue to the only recovery of management costs of the delegated Public Service peculiar to the management of household and similar waste, will confer a sustainability to the management process of the said service that would be measured by the rate of recovery of costs.

Thus, the indicator that reflects the cost recovery performance criterion relate to the rate of recovery of recorded management costs.

### *3.1.3 Environmental Module*

The performance criteria selected are: the reduction at the source of the quantity of household and similar waste, the reduction in the quantity of waste discharged to landfill, the optimization of the circuits of collection, the reduction of pollution generated by the process of exploitation and finally the Regulatory Environmental Compliance.

#### *3.1.3.1 The reduction at the source of the of household and similar waste quantity*

A progressive or regressive evolution of the quantity produced of household and similar waste will certainly allow measurement of the evolution and the progress made at this level, and to study the trends in terms of reduction at the source of the quantity of household and similar waste and which are permitted through the monitoring and analysis of the daily and/or monthly tonnage collected, that is declared produced by the delegatee and that is validated by the delegating authority. It is thus that the quantity produced of household and similar waste constitutes the chosen performance indicator.

#### *3.1.3.2 The reduction of the waste quantity discharged to landfill*

Likewise, a progressive or regressive evolution of the quantity of household and similar waste really discharged to the landfill by the delegatees is an effective way to analyze the trends and efforts deployed to reduce the amount of household and similar waste going to landfills. The corresponding data can be obtained from the tonnage receipt edited by the service in charge of the landfill affiliate d to the urban commune of Casablanca. Thus, quantity discharged of household and similar waste constitutes the considered performance indicator.

#### *3.1.3.3 The optimization of collection circuits*

The operating service of the delegatee identifies and delimits the circuits of collection within indicating the corresponding frequencies and modes of collection deemed appropriate. However, these collection circuits may be the subject of adjustments and give rise to an update corresponding plans which will be systematically actualized following the request of the delegatees and/or the delegator and which must be validated by the delegating authority. As such, an optimization of the collection circuits is permitted through their integration into a circuit management system, which will ensure that the planned circuit will be the one run by the collection trucks of the delegatee.

At this stage, the equipment of collection trucks with a GPS system, is the retained indicator which reflects the expected optimization in order to ensure a public cleanliness in a concertation framework of between the delegatee and the delegator.

#### *3.1.3.4 The reduction of pollution generated by the operating processes*

To provide quality service which meet the expectations of its citizens, any delegating authority is called upon to consider the damage to the environment caused by the delegated service of household and similar waste and work to mitigate the pollution generated mainly by the process of exploitation. In this regard, the reduction of atmospheric pollution generated by road transport operated by the trucks collection, the reduction of noise pollution caused during the realization of the circuits of collection, the reduction of olfactory pollution due to the spill of leachate from collection trucks or due to overflow of the bins garbage, and the reduction of the subsurface pollution are performance criteria which can be assessed and measured by the respective performance indicators related to the use of the collection trucks respecting the Euro 5 standard and presenting a maximum sound level during cycles of compression of collection trucks lower to 85 dB, and to Trucks equipped with the retention mechanism of leachate and equipped also with the recovery system of the leachate integrated to the garbage truck with a tank integrated into the chassis with a sufficient volume. The Parks of exploitation must also be equipped by devices of leachate retention of and by devices of waste oils retention.

The scalable recourse to a system of containerization (Plastic and metallic bins of collection) in sufficient number and volume is also an indicator that would measure the progress to be achieve in terms of reduction of pollutions and nuisances caused by the exploitation of the delegated service of household and similar waste.

### *3.1.3.5 Environmental Regulatory Compliance*

The requirement of an environmental ISO 14001 certification, as an integral clause of the Contract governing the delegation of the public service for the collection of household and similar waste and cleaning, will allow delegatees to know and then master in advance the environmental impacts of their activities and operating service, and to continuously improve their performance while laying down as the main objective the satisfaction of the requirements of the main stakeholders of the studied field.

The ISO 14001, in its 2015 version<sup>6</sup>, puts forward the perspective of life cycle, and requires organizations to adopt a broader point of view and to cope with their environmental issues in a more holistic approach. The life-cycle perspective does not require a detailed analysis of the life cycle of the service; but will engage however the delegatee in a reflection on the phases of the life cycle of the exploitation process (collection and cleaning) that it is able to control its direct and indirect impacts on the Environment, and its avoided impacts inherent to the economies of raw materials and energy thanks to possible optimizations allowed by the exploitation.

Thus, the ISO 14001 certification of the exploitation process is the indicator that reflects the commitment to environmental and regulatory compliance of any delegatee of the collection and cleaning up services.

### *3.1.4 Social Module*

The constituent sub-modules of the Social Module are: the satisfaction of the citizen-user, the equity and solidarity, the social aspect relating to the workers, the information and the participation of citizens-users in decisions, accountability of the citizen user, and finally the social commitment.

With regard to the performance criteria selected for each sub-module, they are explained below:

#### *3.1.4.1 The satisfaction of the citizen-user*

The satisfaction component of the citizen user is expressed by the dual objective concerning on the one hand, the improvement of the quality of the delegating services of collection and cleaning, which must take account of the constraints and of the specificities of the studied territory, is function of the regular evaluation of the satisfaction degree of citizens which is permitted through the analysis of the claims of citizens-users, and especially measured from surveys of satisfaction of citizens-clients which are indicators that express the evolution of the satisfaction rate of citizens of an agglomeration. And on the other hand, the objective of the accessibility to the service for all citizens, reflecting a service of quality and proximity and offered fairly, can be measured by performance indicators analysing respectively the frequency of collection and its evolution, the frequency of cleaning and its evolution, the number of claims of the customer-citizen as well as the response rate to the claims recorded.

#### *3.1.4.2 The equity and solidarity*

The equity component reflects the objective of access for all citizens to the service of collection and cleaning. Its measurement is permitted by the indicator that analyze on one side, the rate of deviation between the population served and the total population, and on the other hand by calculating the percentage of the population served basing on the data addressed from the circuits of collection realized by report to those planified. The integration of the informal sector component in the collection process reflects the goal of social inclusion, dictated by the World Bank. Its measurement is permitted by the indicator that calculates the number of scavengers hired, that can be affected and engaged in the sorting at source, and this by report to those the total workforce engaged by the delegatee in the framework of the public-private partnership.

#### *3.1.4.3 The social aspect relating to workers*

This aspect is expressed by the expected objectives below :

##### *3.1.4.3.1 The good working conditions*

This qualitative performance criterion can be measured via the calculation of i) the rate of personnel unavailability, for the cause of absence justified or unjustified of workers, ii) the real rate of gravity registered that express the number of days of temporary incapacity, iii) the respective rates of work accidents; occupational diseases and the total number of fatal accidents by operating area, and iv) the number of strike days recorded during each year of service. These data must be communicated to the delegating authority by the human resources service of the delegatees to allow it to closely follow the working conditions that govern the delegated public service.

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<sup>6</sup> <http://www.iso.org/iso/fr/news.htm?refid=Ref2013>

#### *3.1.4.3.2 The efficient organization of human resources*

This performance criterion is an objective that rhymes with the involvement of the staff, and which is reached by developing the dialog and accountability. its measure will be based on the calculation of the number of staff training, related to the process of exploitation in its components of collection and cleaning and also to the procedure of the Human Resources and to the service's job descriptions, on the calculation of the number of consultation meetings with the trade unions who are the representatives of the employees, and finally on the calculation of the number of brainstorming meetings associating agents and their representatives in the development of the plans; to the process conception and to the identification and the implementation of improvement actions.

#### *3.1.4.3.3 Employees activity training*

To ensure that the whole of the staff has assimilated the content of the training activity to its profession, the evaluation sheets identified at the end of training sessions are the basic tool which will allow to calculate and measure the rate of effectiveness of training actions organised by the delegatees in the presence of a representative of the delegating authority, and which constitutes the chosen performance indicator.

#### *3.1.4.3.4 Conformity of the conditions of health and safety of workers*

The requirement of an OHSAS 18001 Certification, as an integral clause of the Contract governing the delegation of the public service of the collection of household and similar waste and cleaning, will allow delegatees to set up a management system of health and safety, through the improvement of the social dialog by means of commitments for the protection of the health and safety of workers; and the reduction of the direct and indirect costs (due to less of work stoppages, reduction of material damage, reduction in outages...), and to establish an efficient risk management with a view to reduce the number of accidents, to comply with the legislation and to improve the performance of collaborators. OHSAS 18001 certification will allow to foster the relationships at the internal scale, and will constitute the indicator of compliance of health and safety conditions of workers.

#### *3.1.4.4 The information and the participation of citizens-users in decision making process*

The expected objective of the participation and information of citizens-users in the decision-making process can be measured from the respective calculation of the number of concertation meetings between the delegator, the delegatees and the local elected officials on the subject of communication actions (whether that they are required by the contractual clauses or proposed by the delegatees and/or elected representatives and approved by the delegator), the calculation of the number of awareness campaigns carried out for the benefit of citizen-users in collaboration with the associations for the protection of the environment at the level of each district, and finally by calculating the number of campaigns of environmental education carried out for the benefit of school children who are the vectors of the environmental awareness.

#### *3.1.4.5 The accountability of the citizen-user*

In his report concerning the analyzes and recommendations on the subject of polluter-pays principle, the OECD (1992) considers that "the polluter-pays principle is not a principle of equity, it is not intended to punish the polluter but to introduce the appropriate signals in the economic system in order to integrate the environmental costs in the decision-making process and to reach a sustainable development respectful of the Environment, and that the dominant trend is to responsibilize the polluter and to alleviate the economic burden that pollution fact weigh on the public authorities.

In this regard, a way to apply the polluter-pays principle as a result of the behavior of certain citizens which not respecting the environment (behaviour related mainly to rejection of household and similar waste on the public road, the refusal to dispose the garbage in the correspondants rubbish bins, the non-respect of the passing timetable of the collection trucks by the citizens users), and in order to responsibilize them, the establishment of the Administrative Communal Police (PAC) for the application of the principle of the polluter-pays proves to be an effective tool to ensure respect for the environment, and that the indicator of measure corresponding will be obtained through the calculation of the number of contraventions recorded by the Administrative Communal Police once became effective.

#### *3.1.4.6 The social commitment*

The societal responsibility of an organization vis-a-vis the impacts of its decisions and activities on society and the environment is a pledge of its social commitment that is translated by an ethical and transparent Behavior which contributes to sustainable development and to the well being of society; which considers the expectations

of stakeholders; which is in compliance with the laws in force, and which is rooted in its culture and adopted in its relations. The guidelines that allow companies and organizations to operate in a responsible and ethical manner are the subject of the ISO 26000<sup>7</sup> standard, which presents to each company, the advantage to adapt its policy of social responsibility to its context and socio-economic characteristics; to the specificities of its territory; to the requirements of its stakeholders, and to set specific objectives in the short and long terms at local and national level.

For this purpose, the delegatees are invited more than ever to worry about the environmental and social impacts of their operating services, while being attentive to the expectations and concerns of their stakeholders, to undertake voluntarily the procedures to implementation of the social responsibility and to formalise their commitments through a Sustainable Development Charter which sets of economic objectives aimed at ensuring the operational and financial performance throughout the duration of the delegated management contract, social and societal goals aimed at developing the skills of employees, to have a civic action in society and to ensure that their suppliers meet ethical criteria, and finally environmental objectives aimed at controlling the impacts of the operating service on the ambient environment.

The development of this corporate social responsibility charter by the delegatees is the performance indicator that will allow us to measure their social commitment.

After having exposed the constituent modules of our dashboard and detailed the performance criteria retained, which constitute the main qualitative objectives, we have defined the quantitative measurement indicators related thereto. These performance indicators with sustainable vocation, classified respectively in economic; environmental; social indicators, and in addition to those institutional and legal, will be submitted for appreciation to the Head of Division in charge of monitoring collection concessions and cleaning, affiliated to the Urban Commune of Casablanca, and representing the main stakeholder of our case study, which will allow us to assess the delegated public service of household and similar waste in Casablanca.

The assessment approach consists to locate the studied service on a grid of analysis which refers to the Common Assessment Framework of public function (CAF), that we detail below, then to proceed to the weighting of the retained evaluation criteria in order to obtain a Performance Composite Index that will allow us to assess the performance level of our delegated public service of household and similar waste.

### *3.2 The assessment criteria :*

The evaluation assumes to correctly interpret the indicators on the basis of the characteristics of the service and also depending on the means implemented [28]. The establishment of useful and relevant evaluation indicators in the Public action must be done with caution. It can only be global, to avoid that the indicators will be played against the detriment of the objective, and must remain modest to be neither a tool of legitimization nor a means to end the debate. Because the main question of the public policies assessment relates to the interpretation, which underlies the construction, the shaping and the deliberation of the quantitative arguments, a fortiori when one moves to a certain degree of aggregation [29].

In a mechanistic view of management systems, the collection and reporting of information on inputs, efficiency, effectiveness and quality of public action must fuel the planning, control, and managerial decision making. The measurement of performance is called upon to improve organizational results by making possible the corrective actions and by strengthening the responsibility [30].

The Common Assessment Framework (CAF) is a total quality management tool developed by the public sector for the public sector, and inspired by the model of excellence of the European Foundation for Quality Management (EFQM) [31]. The CAF is often regarded as an instrument of initial measurement that identifies the areas where it is essential to undertake a work of measurement [32].

Starting from the fact that a self-assessment procedure must be structured and based on a pattern which guide the self-assessment, the CAF provides such a pattern in which the design is based on the basic principle that it is possible to conceive a "logic skeleton" which represents the important characteristics of any organization (such as the "Leadership", the "Policy and Strategy", etc).

Based on this "skeleton", it is possible to build up a series of questions that test the Organization in all important areas and to provide a logical basis to produce fundamental statements on the performance of the Organization in such field. If, for example, it is admitted that each organization should have a visible and explicit mission as well as a strategy, a question will check if the organization meets the requirements in this area or not. Series of questions, by the field tackled by the scheme or the assessment grid, can lead to certain conclusions at the level

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<sup>7</sup> <http://www.afnor.org/dossiers-thematiques/developpement-durable-rse/>

of Organization performance and to highlight the areas requiring more attention [32].

The CAF evaluates the organization under different angles at the same time, thereby adopting a comprehensive approach in the analysis of the performance of the Organization, and its purpose is to generate a full process of continuous improvement within the Organization while responding to five main objectives [31] :

1. to introduce public administrations into the culture of excellence and the principles of Total Quality Management (TQM);
2. to guide them progressively to a fully-fledged PDCA (PLAN, DO, CHECK, ACT) cycle;
3. to facilitate the self-assessment of a public organisation in order to obtain a diagnosis and a definition of improvement actions;
4. to act as a bridge across the various models used in quality management, both in public and private sectors;
5. to facilitate bench learning between public sector organisations.

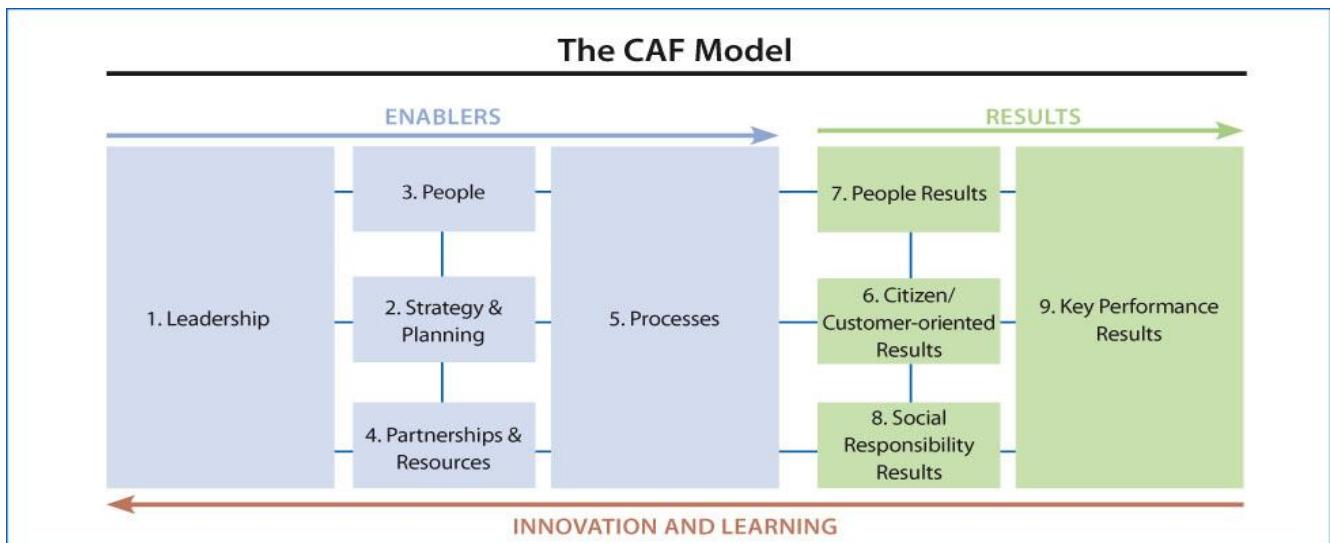
Owing to the fact that the Moroccan administration is requested to rethink its role, to modernize its management techniques and adapt to the changes that operates around it in order to strive the challenges of development, the CAF model is, without doubt, an effective tool for a participatory and winning approach to achieve this objective [33].

### *3.3 Presentation of the assessment model*

The CAF uses a nine-box structure that allows to identify the main aspects requiring consideration in any organizational analysis [32]. This structure in nine criteria, 5 Factors or Enablers and 4 Results (Figure 2), located it in a systemic approach that highlights the main aspects to be considered in our organizational analysis:

- ✓ The criteria 1 to 5: deal with the managerial practices of an organization qualified as Factors and so-called Enablers. They relate to the means of the Organization, determine the nature of its activities and the approach it adopted to achieve the objectives. The Enablers determine what the organisation does and how it approaches its tasks to achieve the desired results.
- ✓ The criteria 6 to 9: qualified as Results, they refer to the results obtained from the citizens/clients, staff/people, social responsibility and relate to key performance that are measured by perception and performance measurements deemed achieved by the assessed entity.

The logic of the CAF model [32] is based on the fact that excellent results with citizens/customers (6), staff (7), and the society (8) are achieved by the leadership function (1) which defines a policy and a strategy (2) and manages the human resources (3), and the external partnerships and resources (4), as well as managing processes (5), leading ultimately to excellent key performance results (9).



**Figure 2 :** Schematic diagram of the Common Assessment Framework (CAF): belgian edition of CAF 2013

The scoring system, consisting of five levels in the initial version of 2002 and refined in the new version of the CAF in 2013, is structured according to the PDCA cycle. (See Table 1 in the annex relating to the grid of classical notation of the CAF model).

To assess the performance of the delegated public service of household and similar waste, in its specific component of collection and cleaning at the scale of Casablanca city, we have selected the CAF model, which is designed to foster the introduction of self-evaluation and the management of quality in the public sector, which will allow us to measure the level of the quality of the delegated public service reached, to assess it and falls within the continuous improvement framework.

### *3.4 Diagnosis of compliance compared to the CAF model*

In our case study, the load-bearing structure that will allow us to assess the delegated public service of household and similar waste is and the Service of monitoring collection concessions cleaning affiliated to the Urban Commune of Casablanca. Our performance criteria retained are first reported to the nine (9) criteria of the CAF model and classified into enablers or in results. Then the corresponding indicators are weighted according to the scoring classic grid of the aforesigned model as it is shown in the Table 2 below:

**Table 2:** Correlation of selected performance criteria to the criteria of the CAF model

Modules	Performance Criteria	Classification according to CAF criteria: Enablers or Results	Selected Performance Indicators
Institutional and Legal Module	(1) Strengthening the institutional and legal framework	Enabler Criterion 2: Strategy & planning	(1) Number of decrees promulgated issued under Act 54-05 (Which lays down the forms and procedures to draw up tender documents and the standard contracts which lay down the mandatory clauses of the delegated management contracts)
			(1) Number of decrees promulgated under Law 28-00 (Which lays down the procedures and dispositions relating to HWM under that Law)
			(1) development of a Provincial Master Plan for the Management of Household Waste (As declination of the National Program for Household Waste)
	(2) Structural Planification	Enabler Criterion 1: Leadership	(2) establishment of a Delegated Household Waste Management Service at the level of the Urban Commune of Casablanca, in charge of quality control of the delegated service
	(3) Regulatory conformity and compliance with the contractual clauses	Enabler Criterion 5: Process and change Management	(3) Compliance rate of the delegated companies concerning the contractual document  (3) ISO 9001 Vs 2008 Certification of the Delegated Service (Operational Process)
Participative democracy		Enabler Criterion 4: Partnership & Resources	*Definition of the Stakeholders by defining the sphere of influence of the delegated public service
			* Number of partnership projects per year related to waste management between key actors
Good governance		Enabler Criterion 2:	A Local Agenda 21 is developed with effective implementation of Chapter 21 on Waste Management

		Strategy & planning	
	Government commitment to the development of the DMA sector	Enabler Criterion 4: Partnership & Resources	*Evolution of State grants allocated to the Local Community to improve the management of the HSW *Evolution of the public allocations paid to this sector
<b>Economic Module</b>	Integration of pre-collection into the waste collection process	Enabler Criterion 5: Process and change Management	Number of containers installed in informal (and evolutionary) habitat areas collected daily
	Development of HSW valorization schemes in a PPP framework	Result Criterion 8: Social Responsibility Results	Number of signed agreements for HSW sorting and valorization with relevant stakeholders (delegated companies)
	Implementation/Establishment of waste sorting systems and their integration into an economically viable system, including financing instruments such as ecological taxes and royalties	Result Criterion 9: Key Performance Results	Annual revenues of different waste streams
	Mastership of public delegated service costs		Cost per ton and evolution
	Effectiveness of the collection service		Collection efficiency rate close to 100%
	Effectiveness of the cleaning service		Cleaning efficiency rate close to 100%
	Service Cost Recovery by : * Application of refuse collection tax (TEOM tax) * effective imputation of waste tax revenues to the recovery of service costs	Enabler Criterion 4: Partnership & Resources	Cost Recovery Rate
<b>Environmental Module</b>	Reduction at source of the amount of Household and Similar waste (HSW)	Result Criterion 9: Key Performance Results	Evolution of the HSW produced quantity
	Reduction of the quantity of Household and Similar waste (HSW) discharged to landfill		Evolution of the quantity of the HSW evacuated to the landfill
	Optimization of collection circuits		Collection trucks equipped with a GPS system

	<b>Environmental Module</b>	<p>Reduction of pollution generated by the operating process :</p> <ul style="list-style-type: none"> <li>* Reduction of air pollution due to road transport of collection trucks</li> <li>* Reduction of noise pollution</li> <li>* Reduction of olfactory pollution due to leachate discharge from collection trucks</li> <li>* Reduction of olfactory pollution due to overflow of garbage from garbage bins</li> <li>* Reduction of underground pollution</li> </ul>	<b>Enabler Criterion 4: Partnership &amp; Resources</b>	<ul style="list-style-type: none"> <li>* Collection trucks complying with the Euro 5 standard</li> <li>* Maximum level sound during cycles compression &lt;85dB of the collection trucks</li> <li>* Collection trucks equipped with leachate retention mechanism</li> <li>* Number of containers (metal and plastic collection bins) and evolution</li> <li>* Collection trucks equipped with a leachate recovery system integrated into the garbage truck with a tank integrated into the chassis and of sufficient volume</li> <li>* Leachate Retention System at the level of the Parks of exploitation + Used Oil Retention System at the Parks of exploitation</li> </ul>
		Legal Compliance and Environmental Commitment	<b>Result Criterion 9: Key Performance Results</b>	ISO 14001 Certification of the Delegated Service (Operational Process)
	Satisfaction and comfort of the citizen-user	Regular assessment of citizens' level of satisfaction	<b>Result Criterion 6: Citizen/Customer-oriented Results</b>	Citizen satisfaction rate (number of client-citizen satisfaction surveys)
		Accessibility to the Service for all citizens		<ul style="list-style-type: none"> <li>* Frequency of collection and evolution</li> <li>* Frequency of cleaning and evolution</li> <li>* Citizens' Claims Response Rates</li> <li>* Number of customer complaints</li> </ul>
	Equity and Solidarity	Equity of Access to the Collection and Cleaning Service	<b>Result Criterion 6: Citizen/Customer-oriented Results</b>	<ul style="list-style-type: none"> <li>* Rate of deviation between the population served and the total population</li> <li>* Percentage of served population</li> </ul>
		Integration of the informal sector into the collection process (in particular for sorting waste at source)		Number of Scavengers hired (involved in Sorting at source) in relation to the total workforce engaged
	Social Component related to employees Social	Good working conditions	<b>Result Criterion 7: People Results</b>	Rate of unavailability
				The real severity rate
				Rate of accidents at work, occupational diseases and total number of fatal accidents per area of exploitation
				Number of strike days
		* Efficient organization of human resources	<b>Enabler Criterion 3:</b>	* Number of staff training in the HR procedure and job descriptions

		* Involving employees by developing dialogue and empowerment	Human Resources Management /People	* Number of consultation meetings with staff representatives (trade union).
Social Module	Component related to employees	Employees activity training	Result Criterion 7: People Results	*Number of brainstorming meetings aiming to associate agents and their representatives in the preparation of plans, strategies and objectives, in the design of processes and in the identification and implementation of improvement actions.
		Compliance with Health and Safety Requirements for Workers		Rate of effectiveness of training activities (obtained thereafter training activities)
		Information and participation of users in decision-making	Result Criterion 6: Citizen/Custom er-oriented Results	ISO 18001 Certification of the Delegated Service (Operational Process)
	Information and participation of users in decision-making	Information and participation of citizens-users in the decision-making process	Result Criterion 6: Citizen/Custom er-oriented Results	Number of consultation meetings between the delegator, delegates and local elected representatives on communication actions
		Application of the polluter-pays principle through the creation of the Administrative Municipal Police (PAC)		Number of awareness campaigns carried out for the benefit of citizen users in collaboration with associations for the protection of the environment at the level of each borough.
		Awareness of CSR concept		Number of environmental education campaigns carried out for schoolchildren.
	Accountability of the citizen-user	Social commitment	Result Criterion 6: Citizen/Custom er-oriented Results	Number of contraventions registered by the PAC
			Result Criterion 8: Social Responsibility Results	Charter of the Corporate Social Responsibility of the delegated Service in charge of the delegated management of household and similar waste

Tables 3 annexed, detail the approach of weighting and the Table 4 below consolidates the results of rating according to the CAF model.

### 3.5 Methodology of the construction of the Performance Composite Index (PCI)

The calculation of the average of the weighted criteria divided by 100, will allow us to obtain the performance composite index formulated below:

$$\text{PCI} = \sum_{100} \text{Average weighted criteria} = (408/9/100) = 45$$

The Composite Performance Index we reached is 45 on a scale of 100, and which is projected on the scale of progress, referenced to the PDCA cycle, as annexed in Table 1 related to the assessment results, shows that the delegated public service of household and similar waste in Casablanca is characterized by stable trends of evolution and by a partial achievement of the objectives that must be attained.

**Table 4 :** Consolidation of the rating results according to the CAF model

<b>Institutional and Legal Module: Correlation with CAF</b>	<b>The notation according to the CAF model</b>	<b>Average criterion</b>
F1	100	100
F2	43	22
F2	0	
F4	60	53
F4	50	
F4	50	
F5	55	55
<b>Economic Module: Correlation with CAF</b>	<b>The notation according to the CAF model</b>	<b>Average criterion</b>
F4	10	10
F4	10	
F4	10	
F4	10	
F5	70	70
R8	50	50
R9	0	53
R9	70	
R9	70	
R9	70	
<b>Environmental Module: Correlation with CAF</b>	<b>The notation according to the CAF model</b>	<b>Average criterion</b>
F4	80	75
F4	70	
R8	10	10
R9	30	30
R9	30	
R9	30	
<b>Social Module: Correlation with CAF</b>	<b>The notation according to the CAF model</b>	<b>Average criterion</b>
F3	40	40
R6	0	29
R6	80	
R6	70	
R6	0	
R6	50	
R6	0	37
R6	0	
R7	60	
R7	50	
R7	0	

The Table 5 belows evince the final result and reveal the correlation and scoring obtained:

**Table 5:** Final result of the scoring by criteria and by module

Criteria of the CAF model	Total rating by criteria: Institutional and Legal Module	Total rating by criteria: Economic Module	Total rating by criteria: Environmental Module	Total rating by criteria: Social Module	Average criterion
<b>1. Leadership</b>	100				<b>100</b>
<b>2. Strategy &amp; Planning</b>	22				<b>22</b>
<b>3. People/ HRM (Human Resource Management)</b>				40	<b>40</b>
<b>4. Partnership &amp; Resources</b>	53	10	75		<b>46</b>
<b>5. Processes</b>	55	70			<b>63</b>
<b>6. Citizen / Customer-oriented Results</b>				29	<b>29</b>
<b>7. People Results</b>				37	<b>37</b>
<b>8. Social Responsibility Results</b>		50	10		<b>30</b>
<b>9. Key Performance Results</b>		53	30		<b>41,5</b>
<b>Total</b>					<b>408</b>
<b>Average /100</b>					<b>45</b>

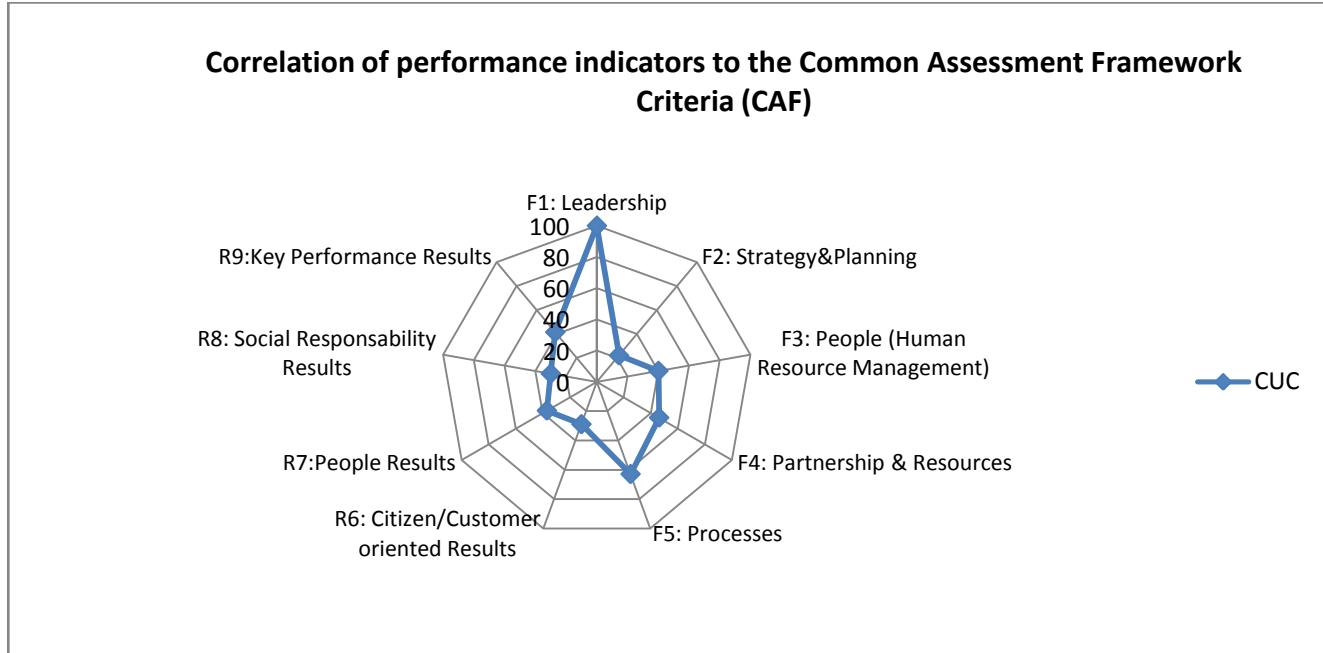
### 3.6 Graphical representation

The weighting of sustainable development indicators, resulting in the rating by criterion and by Module in Table 5, obtained according to the correlation of the retained performance assessment criteria to the Common Assessement Framework (CAF model), will allow us to evaluate the level of performance of the public service of household and similar waste; delegated by the Urban Commune of Casablanca, that we are illustrating by the radar screen (Figure 3) below.

### 3.7 Results interpretation

The performance assessment of the delegated public service of household and similar waste, in its specific component of collection and cleaning, applied to the case study of the Urban Commune of Casablanca, is obtained on the basis of the weighting of the adopted performance indicators, according to the scoring grid of performance criteria correlated to the assessment criteria of the Common Assessment Framework (CAF model). In this regard, each indicator is converted to a value related to the target, with a scale ranging from 0 to 100, and the scores obtained are then aggregated with a system of weights, and the final result being a score ranging from 0 to 100. The principle of the weighting, which highlights the structure of modulation, allows to confer a weight that is related to each constituent module of our dashboard, and to define the interval which reflects the level of performance assessment of the delegated public service of household and similar waste, and finally to calculate the weighting composite index. In terms of the interpretation of the results obtained, which reflect the level of the performance of the delegated public service of household and similar waste applied to our case study, we note that in its delegation, the Urban Commune of Casablanca is distinguished by

a leadership, which is in the phase of continuous improvement with the effective creation of an entity in charge of the monitoring and control of the public service of household and similar waste. However, it must develop the strategy and planning axis considering it as a performance criterion to strengthen via the definition and execution of action plans focusing on the strengthening of the institutional and regulatory framework. It must become more involved in the management change process, and ensure the strict compliance with contractual clauses and the regulatory conformity of delegatees.



**Figure 3 :** Graphical representation of the sustainable performance level of the delegated public service of household and similar waste applied to the Urban Commune of Casablanca (CUC)

As a delegating authority, the Urban Commune of Casablanca must ensure that the delegatees value the human capital, offer good working conditions for its employees, and provide effective management of its human resources benefiting from trainings on the job being hired for, and in terms of their implications in the successfulness of the delegated management experience. The Urban Commune of Casablanca must impose on the delegatees to regularly assess the rate of satisfaction of citizens, regarding the quality of collection and cleaning services delivered, and must ensure a fair access to collection and cleaning services for all citizens, and ensure a social inclusion of the informal sector (Scavengers). Also, it must request the delegatees to invest in the waste recovery, and to strive for mastering the costs management in order to establish an effectiveness of the collection and cleaning services.

Urban Commune of Casablanca must forge more partnerships with other stakeholders which impact the sphere of influence of the delegated management, namely national government and those International non-governmental bodies in order to attract investment. It must invite the delegatees and work with them, in a concertation framework, for the establishment of a social responsibility charter that sets objectives for sustainable development aimed at ensuring an operational and financial performance throughout the duration of the delegated management contract. The Urban Commune of Casablanca should impose to delegatees to develop the skills of their employees and to adopt a civic action towards society, and finally to control the impacts of their operating activity on the environment.

Regarding the application of the Performance Composite Index, that we qualified as an appreciation barometer of the local policy inherent to the delegation of the public service of household and similar waste, it is dependent on the choice of the constituent indicators and the weights related thereto within the basic principles framework stated above, and which we undertake within sustainable development perspective.

In our studied territorial framework, the Performance Composite Index obtained is ranked 45 on a scale of 100, reflecting trends of stable evolution of the delegated public service of household and similar waste, and partial achievement of the objectives targeted by the main stakeholder which is the Urban Commune of Casablanca as the delegating authority of the aforementioned public service.

## **Conclusions**

In our quest for performance assessment of the delegated management of household and similar waste, we have compiled a dashboard integrating four major Modules: Institutional and Legal Module, Economic Module, Environmental Module and the Social Module. These Modules, count on performance objectives which are translated and measured by indicators of sustainable development, which should allow to establish a sustainability of the delegated public service of household and similar waste, and to establish a good governance of this vital sector.

Our research work, experienced at the specific territorial scale of Casablanca, primarily responds to the local need for the assessment of the sustainable performance of the delegated public service of household and similar waste, in its respective component of collection and cleaning, by proposing a coherent system of sustainable development indicators that reflect the main performance expected by the delegating authority, represented in our case study by the Urban Commune of Casablanca, and by adopting a multicriteria and multidimensional approach which is part of sustainability perspective that allies the economic; environmental and social components, in addition to those institutional and legal.

The level of sustainable performance of the delegated public service studied, is expressed by the Performance Composite Index, which appreciates the efficiency of the delegation management of the public service of household and similar waste at the studied territorial level within a sustainable development framework, based on a list of indicators and referring to the Common Assessment Framework.

The organizational self-diagnosis of the Service of monitoring collection concessions, falling within the Urban Commune of Casablanca delegating the public service of household and similar waste, has resulted in the identification of improvement areas under which, the criteria with a high score are the index of a good practice that would be interesting to be known to the other delegating authorities of the public service of household and similar waste.

The identified improvement areas in our case study are the respective source of apprehension by the Head of the Service of monitoring collection concessions, and inspiration of an action plan that should be presented as one of the tangible results of the self-assessment practice with the CAF, and whose objective is to proceed to a comparative analysis of the delegating authorities performance of the public service of household and similar waste.

At territorial scale, the intended organizational self diagnostic approach will allow the service in charge of collection concessions, falling within the Urban Commune of Casablanca, to present its good practice to its local partners and to the public, and at national scale, it should allow to feed a national databases of good practices in terms of sustainable management of household and similar waste. These databases must be created to serve as a meeting point for the urban communes or grouping of municipalities wishing to engage in a process of benchmarking in terms of sustainable and integrated management of the delegated public service of household and similar waste.

To conclude, our dashboard is decision support tool, designed to be used by the delegators. It allows, through the performance indicators selected then correlated and weighted according to the Common Assessment Framework (CAF), to obtain a Performance Composite Index and to establish a benchmarking between Urban Communes on the subject of the delegated public service of household and similar waste at the national level, and these by assessing their performance levels, and by comparing their respective Performance Composite Indices.

In terms of intake of this research work, sustainable performance indicators of the delegated public service inherent to household waste management have been defined, which allows to measure the progress of a territorial community administered by an Urban Commune through a Performance Composite Index: the case of casablanca is privileged, but at the price of some adaptations, our sustainable development indicators could be applied to other communes. Our research work propose a decision support tool, allowing to consider and to assess the performance in the specific area of the delegated management of the local public service of household and similar waste, and this is in a perspective of sustainable development.

Speaking of the limits, and hence of the fact that an exploratory case study contains limits, it would be pertinent to conduct confirmatory depth exploratory investigations within several Urban Communes, allowing to put in place a performance assessment model of the public service of household and similar waste management serving as the reference.

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## **Appendices**

**Table 1:** Assessment scale according to the CAF model<sup>8</sup>

<b>Phase</b>	<b>Enablers assessment panel</b>	<b>Score</b>	<b>Level in 2002</b>
	No evidence or only anecdotal evidence of an approach	0-10	0
PLAN (Planifier)	An approach is planned	11-30	1
DO (Développer)	An approach is planned and implemented	31-50	2
CHECK (Contrôler)	An approach is planned, implemented and reviewed	51-70	3
ACT (Adapter)	An approach is planned, implemented and reviewed on the basis of benchmarking data and adjusted accordingly	71-90	4
PDCA	An approach is planned, implemented, reviewed on the basis of benchmarking data, adjusted and fully integrated into the organisation	91-100	5

<b>Results assessment panel</b>	<b>Score</b>	<b>Level in 2002</b>
No results are measured	0-10	0
Key results are measured and show negative or stable trends	11-30	1
Results show modest progress	31-50	2
Results show substantial progress	51-70	3
Excellent results are achieved and positive comparisons to own targets are made	71-90	4
Excellent results are achieved, positive comparisons to own targets are made and positive benchmarks against relevant organisations are made.	91-100	5

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<sup>8</sup> Source: CAF 2013- Belgian edition

**Table 3** : Weighting results of selected performance indicators

Modules	Correlation with the CAF model	The notation according to the CAF model	Average correlated rating according to CAF model
Institutional and Legal Module	F2	100	43
		0	
		30	
	F1	100	100
	F5	80	55
		30	
	F4	50	60
		70	
	F2	0	0
Economic Module	F4	50	50
	F4	50	50
	F5	70	70
	R8	50	50
	R9	0	0
	R9	70	70
	R9	70	70
Environmental Module	R9	70	70
	F4	10	10
	R9	30	30
	R9	30	30
	F4	80	80
Social Module	F4	7	70
	R9	10	10
	R6	0	0
	R6	80	80
	R6	70	70
	R6	0	0
Social Module	R7	60	60
	F3	80	40
		0	
		40	
	R7	50	50
	R7	0	0
	R6	50	50
		50	
		50	
	R6	0	0
	R6	0	0