

1 ANNEXE - ANNOTATED LITERATURE REVIEW

Purpose of this annex is to show in detail the sources that have been used to define the strategy used to design the survey and also to define conclusions and recommendations.

The documents have been classified in main categories in relation to the main topics they were addressing.

In the left column it can be found the name of the document and relative data, in the right column a brief description of the content of the publication and some of the citations in relation to cost recovery and participation addressed in the document or functional for the literature review.

They are presented usually with the same structure.

- *in italic* : a brief description of each document;
- *on bullet points* : details about specific subjects or comments expressed in relation to cost recovery and participation topics (especially in case they have been relevant for the research).

1.1.1 National strategy

Document	Brief description
	- Main points in relation to participation and cost recovery addressed in the document
MEW, 2012. NWSS - National Water Sector Strategy.	<i>Reference document about national water and wastewater strategy in Lebanon</i> (Document extensively used for redaction of chapters 2 and 3)
SOGESID, 2005. Local Water Supply, Sanitation and Sewage. Country Report Lebanon. , (November), pp.1–19.	<i>Document of synthesis of main institutional arrangements and situation in the water sector few years after publication of law 221/2000</i> (Document extensively used for redaction of chapters 2 and 3)
ESCWA, 2012. Water in Lebanon Strategic Management - Data National Assessment Matrix	<i>Document of synthesis about water situation after publication of National Water Strategy.</i> (Document extensively used for redaction of chapters 2 and 3)
WORLD BANK, 2009. Lebanon Social Impact Analysis - Electricity and Water Sectors. , (48993).	<i>Documents showing similarities between electricity and water public services.</i> - Analysis of actual expenditures and willingness to pay of citizens; - Cost recovery analysis for Establishments; - Need to establish trust between Establishments and customers while simultaneously improving performance;
WORLD BANK, 2010. Republic of Lebanon Water Sector: Public Expenditure Review,	<i>Analysis of the situation of water sector under institutional and strategic point of view in relation to overall economical and political situation of the Country.</i>
WORLD BANK, 2012. Lebanon Country Water Sector Assistance Strategy,	<i>Analysis of possible intervention to reinforce possibility of successful implementation of NWSS</i>



	<ul style="list-style-type: none"> - Need for ownership and stakeholder involvement especially at local level; - Need for Establishments to improve accountability: internal (benchmarking and performance monitoring) and external (communication and transparency of information); - Need for creation of new businesses model for sustainability of Establishments and testing out reforms on a small scale before replication on a larger scale
Catafago, S., 2005. Restructuring water sector in Lebanon: Litani river authority- facing the challenges of good water governance. , 93, pp.75–93.	<p><i>Analysis of process of reforms in the water sector after law 221 in Lebanon with a brief history of water legislation in the country. Focus from a general point of view to a more detailed analysis about Litani Water Establishment.</i></p> <ul style="list-style-type: none"> - The initial legislation and regulatory framework of water resources in Lebanon has been characterized by overlapping, redundancy, duplications and lack of coordination; - Without a sound water management system every additional need in water supply in the past has been faced with an increase in production instead that with a real effort in rationalizing and improving the management of the resources; - The reforms of 2000 has been promoting a new approach in order to contrast the negative progresses in the sector, where many different studies were confirming pessimistic scenarios for the future; - The new reform process is just at the beginning and needs time to get properly implemented.
Comair, F., 2007. Water sector in Lebanon an operational framework for undertaking legislative and institutional reforms	<p><i>Situation of water sector in Lebanon especially under institutional and legislative point of view. Analysis of necessary institutional and legislative steps to be completed for a sustainable water sector reform within IWRM framework.</i></p>

1.1.2 Regional documents

WORLD BANK, 2007. Making the Most of Scarcity - Accountability for Better Water Management Results in the Middle East and North Africa,	<p><i>Analysis of general problems of water management in the MENA region</i></p> <ul style="list-style-type: none"> - Reforms for encouraging efficient and responsible water uses have been politically too weak because lack of accountability to the public has been weak; - In the region there are experiences where utilities have been able to provide quality services that people are willing and able to pay for.
ESCWA, 2009. Sustainable water supply and sanitation for all - Regional assessment report on the status and achievements of ESCWA member countries towards improved water supply and sanitation	<p><i>Regional assessment on achievements and strategies towards MDG goals in water and sanitation.</i></p> <ul style="list-style-type: none"> - Lebanon is considered on track to achieve the objectives; - At regional level, reforms have been adapted toward decentralization in management in favor of regional entities, but poor coordination mechanisms, lack of finance and skilled personnel leave these Institutions incapable to properly maintain assets and leave them dependent on Governments to fund new investments; - “Greater effort should be made to encourage participation of users through local councils, raising public awareness on the



	<p>need to conserve water and developing civic habits of abiding by Government rules, regulation and legislation”</p> <ul style="list-style-type: none"> - “The role of civil society, particularly women, should be strengthened to ensure efficient and sustained performance of the services”.
ACWUA, 2013a. Management of Water Utilities - Case studies from the Arab Region.	<p><i>Regional analysis of problems and best practices present in the management of Water Utilities especially in terms of cost-recovery through tariff adjustment, reduction of UFW and improved asset management.</i></p> <p>In relation to Lebanon in particular:</p> <ul style="list-style-type: none"> - Necessity to inform the citizens that the cost of water does not represent the cost for water itself, but covers the cost of the whole service including extraction, treatment, transport, storage and distribution; - Raising of prices is necessary to allow establishments to recover their operational costs; - Establishments should focus on operational and maintenance processes and the investment strategy should take in account replacing or renewing fixed assets in order to reduce O&M costs; - The actual tariff (flat rate) does not encourage water conservation and does not take in consideration the poor fraction of the population.
ACWUA, 2013c. WATER UTILITIES REFORM,	<p><i>Regional analysis for reform in water sector in order to achieve financial viability of Utilities.</i></p> <ul style="list-style-type: none"> - Need of improving financial management, restructuring of tariffs, improvement of institutional setup by separation of functions in order to increase autonomy and accountability; - Need to improve stakeholder engagement and customer oriented approaches in the decision making loop <p>In relation to Lebanon in particular:</p> <ul style="list-style-type: none"> - Need to improve services from a commercial point of view, such fees collection process and public enquiry management system; - Need to empower local active entities in performing their duties, encouraging also Public-Private-Partnerships.
ACWUA, 2013b. Public Awareness Experiences in the MENA Region,	<p><i>Overview of successful experiences in public awareness about water in MENA Region and tips for organizing proper awareness campaigns.</i></p> <p>In relation to Lebanon in particular:</p> <ul style="list-style-type: none"> - “Public awareness of water conservation is essential to building a foundation for education on water conservation efforts and water pollution control. It is also critical to increase people’s knowledge of water use, water resources, as well as the need to conserve water with the aim of changing behaviors and attitudes to better manage the resource”. - Increase the knowledge of people about their resource is a cost-effective tool for water conservation; - Awareness campaign should be based on a deep analysis of the actual situation of the targeted audience.
Gerlach, E. (ACWUA), 2011. Regulatory Design and Practice in the MENA Region and Beyond.	<p><i>Analysis of regulatory processes in the region and common problems.</i></p>



	<ul style="list-style-type: none"> - Lack of clarity and consistency in the legal framework are obstacles to efficient regulation of the sector; - Incomplete separation of roles of policy-making, regulators and service provider; - Regulators should try to act in a way that could be perceived fair by all the stakeholders. For achieving this it is necessary proactive stakeholders engagement. - Actual interaction with consumers are limited only to complaints handling; - Performance based indicators and agreed mechanism for monitoring would increase trust and confidence among service providers and institutions and would - Some countries in the region are actually seeking to strengthen consumer involvement in the regulatory process and introduce forms of customer consultation and representation. - “Water tariffs are de-linked from consumers demand and economic cost of service provision, both often being an unknown”;
<p>Magiera, P., Taha, S. & Nolte, L., 2006. Water demand management in the Middle East and North Africa. <i>Management of Environmental Quality: An International Journal</i>, 17(3), pp.289–298. Available at: http://www.emeraldinsight.com/doi/abs/10.1108/14777830610658700 [Accessed December 27, 2014].</p>	<p><i>Comparative analysis of tariff structures in some MENA countries (Lebanon not included in the study).</i></p> <ul style="list-style-type: none"> - All countries use escalating block tariffs for household consumptions from simple two blocks. - Average price per m3 is 0,56 Euro (min 0,29; max 0,83) (average in Lebanon is 0,38 Euro/m3 calculated on a flat tariff of 240.000 LBP per year and 1m3/day); - Prices in urban areas are usually higher than in rural areas and commercial businesses pay always an higher tariff than households; - Water tariffs are a highly sensitive issue and are commonly set by ministries or approved by them; - Important increases in water tariff in some countries have generally brought to water conservation; - Awareness about water conservation in some countries has been estimated as contributing for around 4-8% of total water reduction; - Trust in water authorities is considered essential for convincing people on the importance of water saving; - Water saving devices for agriculture (sprinklers, drippers) can contribute to a reduction between 20-40% of total water used in the sector; - Water demand management through water tariff should be considered only where capita water consumption is above 100 l/c/d otherwise price increases will not have direct effects. For medium-large consumers, especially in agriculture, tariff increases will provide better management of the resource and possible funds to pay for wastewater sector.

1.1.3 Water tariff

<p>Jaber, B., 2002. Water tariffs in Lebanon.</p>	<p><i>Situation of water sector and factors taken in account in the composition of tariffs before and after publication of law 221/2000.</i></p> <ul style="list-style-type: none"> - Project investments are usually provided by the Government and studied without devoting much attention on their impacts
---	--



	<p>and operation and maintenance costs and without responsibility for the Operators to recover their capital costs during life of the infrastructures;</p> <ul style="list-style-type: none"> - General approach in the sector is just concentrated in increasing the Production and not in demand management; - The effective cost of water is not taken in account in the tariff: tariffs are more geared to social aspects rather than commercial aspects; - A business plan approach should be followed by the Establishments but the tariff they should propose to the approval of the council of Ministers should also take in consideration public or general socio-economic conditions (social equity).
<p>Chatila, J.G., 2005. Water tariffs in Lebanon : a review and perspective. , 7, pp.215–226.</p>	<p><i>Review about possible tariff structures to be proposed in Lebanon after publication of law 221/2000.</i></p> <ul style="list-style-type: none"> - It is important to move towards a water pricing policy that take in consideration the opportunity costs of water and promote water conservation; - The tariff should reflect real cost of water (not just O&M but also CAPEX costs). This can affect the poorest sector of the society. A policy of subsidies could be taken in account for guaranteeing the minimum standards of provision; - Necessity to review organically the price-schemes in order to achieve long term policy goals and implement volumetric tariffs; - Industries should be subjected to increasing block tariffs even if they receive their supplies from private wells; - Due to the difficulty to implement in a short time water pricing reforms the government could promote water demand management also through other ways like transferring some management responsibility to users groups that could support in collecting water charges and maintain the physical facilities.
<p>GIZ, 2012. Water Balance in Helaliyeh, Saida, South Lebanon Water Establishment,</p>	<p><i>Report about Water balance exercise conducted by GIZ in a Municipality in South of Lebanon to determine consumption patterns and Non Revenue Water (NRW) according to IWA standards.</i></p> <ul style="list-style-type: none"> - Lower third of subscribers consume less than 0,4 m3 per day (8% of total water volume); middle third (0,4-0,8 m3/day) consume 25% of the water; the upper third consumes 66% of the total water consumption; - Introduction of volumetric tariff will most likely lead to further reduction of specific water demand per person.
<p>GIZ, 2011. Water Balance in Hamat, North Lebanon Water Establishment,</p>	<p><i>Report about Water balance exercise conducted by GIZ in a Municipality in North of Lebanon to determine consumption patters and Non Revenue Water (NRW) according to IWA standards.</i></p> <ul style="list-style-type: none"> - Description of differences between adapting a Water Balance conducted under IWA standard and the Simplified water Balance currently used in some Lebanese schemes.
<p>Nizam, A. (SLWE), 2011. Water Sector Reform in Lebanon and Impact on Low Income Households.</p>	<p><i>Presentation done Analysis of water sector reform impact especially on low-income households.</i></p> <ul style="list-style-type: none"> - Low income households are more exposed to opportunistic behaviors from private providers with also concerns on quality of the water supplied;

	<ul style="list-style-type: none"> - Low income household have no power with actual fee tariff to decide their preferred level of consumption and control their bill; - Until the volumetric tariff will not be applied establishments support low income consumers through ad hoc measures like limited application of termination policy in case of non-payment.
Riachi, R., 2014. LCPS. LCPS. Available at: http://www.lcps-lebanon.org/featuredArticle.php?id=27 [Accessed November 3, 2014].	<p><i>Article published on LCPS (Lebanese Center for Policy Studies) about reaction of the Government in relation to water scarcity in 2014.</i></p> <ul style="list-style-type: none"> - Need of introduction of a volumetric tariff with scaled concept complemented by a low tariff applied to subsistence volume.
USAID, 2007. Lebanon Water Policy Program (LWPP)	<p><i>Final report of the Lebanon Water Policy Program conducted form 2002 and 2007.</i></p> <ul style="list-style-type: none"> - Description of the actions taken for developing a framework for a National Tariff Strategy; - Developing Establishment Businesses plans through promotion of the concept of Cost centers; - Different scenarios of cost-recovery based on tariff blocks and Establishment business plans; - Example of the implementation of a conflict resolution approach among different stakeholders in the water sector (institutional and local leaders). The points of intent could just be found by guaranteeing better level of service and more supply of water, quick response to complaints and better supervision of installations; - Strategy for improving participatory approaches in water management was mainly conducted through publication of brochures and awareness initiatives at school level; - Willingness to pay exercise conducted in Saida shows that only 36% of people would pay more for a better service in that area.
WORLD BANK, Questions & Answers: Water Supply Augmentation Project, Lebanon. Available at: http://www.worldbank.org/en/news/feature/2014/09/30/questions-and-answers-water-supply-augmentation-project-lebanon [Accessed December 14, 2014].	<p><i>Description of the impacts of the Bisri Dam project for improving water supply in Greater Beirut and Mount Lebanon (GBML) areas</i></p> <ul style="list-style-type: none"> - A study conducted shows that in GBML areas some households spend up to 15% of their total household expenses. This figures is much higher that international benchmarks (<i>should be maximum at 5% of households income</i>).

1.1.4 Water right

ESCWA, 2013. ESCWA Water Development Report 5 - Issues In Sustainable Water Resources Management And Water Services In The Arab Region.	<p><i>Progresses towards the achievements of MDG in Arab Countries. MDG+ initiative for monitoring additional regional specific indicators for post 2015.</i></p> <ul style="list-style-type: none"> - The way the MDG goals (up to 2015) are defined is taking in consideration just health-based aspects and do not reflect the level or the quality of the services provided in Countries like Lebanon that appears to have achieved full access to water supply and sanitation services; - Necessity to include water right principles (in terms of equity, accountability, empowerment, participation, non-discrimination and attention to vulnerable groups) into the
---	---



	<p>plans and policies of public services and make the Governments responsible to ensure them;</p> <ul style="list-style-type: none"> - Communities and vulnerable groups should be empowered to participate in decision-making processes
<p>Assaf, B.K. et al., 2004. Water as a human right: The understanding of water in the Arab countries of the Middle East - A four country analysis. , (11).</p>	<p><i>Assessment about progress of the concept of water as a human right in Middle East Countries (Lebanon; Palestine; Egypt; Jordan)</i></p> <ul style="list-style-type: none"> - Reporting an AWWA publication: “In general, water service is affordable, when not more then 2% of the average family income needs to be spent for water.” - Price per cubic meter for underground water not supplied by public services ranges between 1 and 2,5 USD/m³ (against an average price of 0,4 USD/m³ for a “theoretical” subscription to public services). This amount it is not economically accessible for all the users and push them to make illegal connections; - Remote areas are affected by discrimination in access to public services; - People in the whole region do not know about their right to water in terms of quantity and quality; awareness and empowerment is necessary; - People centered approach in promoting water right and access to water “<i>is more effective, efficient and less costly</i>”.
<p>Klawitter, S. & Qazzaz, H., 2005. Water As A Human Right: The Understanding Of Water In The Arab Countries of the Middle East. International Journal of Water Resources Development, 21(2), pp.253–271. Available at: http://www.tandfonline.com/doi/abs/10.1080/07900620500036414 [Accessed September 10, 2014].</p>	<p><i>Analysis about the level of achievement of the concept of water as human right in Middle East Region. Evaluation of water right indicators in relation to UN definitions.</i></p> <ul style="list-style-type: none"> - “Recognizing water as a human right creates the political will to solve the water crisis, lowering poverty and raising health by establishing a partnership between the human rights and the water sector community”.
<p>Makdisi, K., 2007. Towards a Human Rights Approach to Water in Lebanon: Implementation beyond “Reform.” International Journal of Water Resources Development, 23(2), pp.369–390. Available at: http://www.tandfonline.com/doi/abs/10.1080/07900620701189434 [Accessed September 9, 2014].</p>	<p><i>Description of the existing gap in Lebanon between the existing political acceptance of water as a human right, and its implementation.</i></p> <ul style="list-style-type: none"> - The reforms in the water sector do not move towards a right based approach to water: the concept even if currently politically accepted is vaguely defined and legally unenforceable; - The reform process “has neglected this aspect of water rights by limiting the consultation of the national water strategy to a select group of public officials, international donors and hand-picked civil society members involved with technical expertise rather than social concerns”; - Lack of proper water meters means that all Lebanese pay the same amount for their annual subscription regardless of their income; - Even in Lebanese Constitution declare clearly that discrimination is illegal there is a de facto discrimination against poorer regions located in rural areas like Hermel and Akkar; - “Lebanon political system is not based on liberal-democratic principles (as international conventions tend to assume) but sectarian and clientalist considerations”; this has brought to political elites that divide national resources and provide services to their “clients/citizens” instead of having a viable state to citizen relationship; this political structure has



	<p>detrimental effects in creating a national civil society that could advocate for human rights;</p> <ul style="list-style-type: none"> - Considering the fragmented nature of Lebanese civil society it would be important that Donors and International NGOs include water right as a precondition for development aid
--	--

1.1.5 Water resources

<p>Comair, F.G., 2005. La Géopolitique de l' eau au Liban.</p>	<p><i>Analysis of water resources in Lebanon in relation to demand and existing capacity of supply in a national and regional IWRM framework</i></p>
<p>Comair, F., 2013. A New Approach for Water Planning , Management and Conflict Resolution in Lebanese Transboundary Basins : Hydrologic Modeling for Climate Variation and Water Policy Development.</p>	<p><i>Analysis of trans boundary international agreements for Lebanon basins management. Actual situation and perspectives for the future.</i></p> <ul style="list-style-type: none"> - Groundwater extraction in some areas of the country is limited due to international agreements. In particular the North Bekaa (area of the project mentioned in this research) is subject to limitations because of agreements signed with Syria about management of Orontes (El Assi) river basin.
<p>Darwish, A., 2004. Assessment of water resources and water sector in Lebanon. , Green Line Association (11), pp.108–135.</p>	<p><i>Assessment of water resources and water demand in Lebanon. Analysis of constraints and challenges for the application of the water as a human right principle.</i></p> <ul style="list-style-type: none"> - Actual subscription is regulated by gauges set at 1m³/day (or more depending on the kind of subscription) that usually people tend to alter or remove personally or bribing the control officers; - Actual situation is that deprived households do not receive water in case they do not subscribe and pay the fee; - The actual price of water does not allow access to water for all the households, depending on their different incomes; this in other countries would be a social problem but in Lebanon this is often overcome by illegal connections; - Even if there are fines about illegal connections, there is no real capacity to enforce the law, as this could lead to tensions between different authorities; - The city of Saida, where a new volumetric tariff system has been proposed should be taken as example; - Political and institutional aspects in Lebanon do not allow an enabling environment for the achieving the right to water, “the government considers public discussions on water as negative to its image and to a certain extent a taboo subject. The impact of this attitude affects mainly the free accessibility to information and data”.

	<ul style="list-style-type: none"> - “ Public awareness of water issues is concerned about the country’s insecurity about perceived and real threats to its sovereignty over water resources. National water policy, law and institutional setting do not contribute to change that perception. Water data quality is often poor and data itself are not easy to get with negative impetus on data collection, analysis, and publishing.” - Major obstacles to achieve a plan for improving the sector are lack of political will and presence of hidden political interests; lack of coordination between the various institutions dealing with water constitutes an additional problem for improving the services; - Centralized decision making, administrative regulation and complex bureaucracy are obstacles to decentralization and stakeholders participation in the sector - It is recommended to “conduct community training and awareness campaigns related to right to water, accessibility and affordability, in addition to good practices in water management and saving practices”
<p>El-Fadel, M., Zeinati, M. & Jamali, D., 2001. Water resources management in Lebanon : institutional capacity and policy options. , 3, pp.425–448.</p>	<p><i>Existing water laws and regulations under the institutional framework in Lebanon after publication of law 221/2000.</i></p> <ul style="list-style-type: none"> - Consensus about water shortages in the next future and urgent need to tackle the resources management problem through proper policy settings; - Institutional strengthening and administrative reforms should promote reduction of central government involvement and at the same time user participation should be allowed and encouraged trough local councils; - Awareness campaigns about water scarcity and conservation are necessary for implementing policies about water conservation.
<p>ESCWA, 2009. Water Resources Issues In The ESCWA Region,</p>	<p><i>Comparative data about availability of renewable water resources in ESCWA region.</i></p>
<p>Krogerus, K., 2010. The management of water resources in Syria and Lebanon : shortcomings and challenges. , pp.73–85.</p>	<p><i>Comparative analysis about water management in Syria and Lebanon under point of views of capacity of evaluating, planning and governing water resource.</i></p> <ul style="list-style-type: none"> - “In Lebanon, the situation is difficult because changes in the administration (<i>ndr: of water resources</i>) might shift the prevailing power balance, which is not seen as desirable by the government due to internal stability considerations.”
<p>UNDP, 2014. Lebanon Environmental Assessment of the Syrian Conflict & Priority Interventions,</p>	<p><i>Analysis of impact of Syrian refugees on Lebanon environment and natural resources management. Proposal of Environmental Monitoring Plans and possible mitigation measures.</i></p> <ul style="list-style-type: none"> - Increased pressure on water resources depletion with additional domestic demand not foreseen in the NWSS (elaborated in 2010); - Short term mitigation measures could include providing support to WEs to improve collection of O&M fees; - Possible integration of humanitarian interventions with water and wastewater infrastructure projects that are under preparation/planned by WEs in impacted areas - Provision of support for covering additional O&M costs due to Syrian refugees crisis (<i>ndr: beneficiary of these subventions are not clear, both Establishments and Municipalities are mentioned</i>).



1.1.6 Geographical Differences and Centralisation Vs Decentralisation

<p>Alles, C., 2010. La réforme du secteur de l'eau au Liban-Sud face à l'urgence de la reconstruction après la guerre de juillet 2006. <i>Géocarrefour</i>, (2), pp.141–151. Available at: http://geocarrefour.revues.org/7852 [Accessed December 26, 2014].</p>	<p><i>Analysis of the reconstruction process within South Water Establishment, after 2006 War, in relation with National water strategy.</i></p> <ul style="list-style-type: none"> - the government, even maintaining its final decision power, left the important role of planning for reconstruction projects to international agencies and NGOs; - In the initial phase, many interventions have been done by international agencies with an “humanitarian approach” often forgetting the existence and the role of a State and of an Establishment (South in particular) with its own long term strategies; - This humanitarian approach has also affected some of the technical choices made by external actors, with promotion of solutions with higher operational costs for the medium/long terms; - The Municipalities have been bypassing the Establishment and seeking directly external support for financing short terms projects not always in line with Establishment strategies and sometimes claiming final ownership of infrastructures instead of remitting them to the Establishment; - The public action in Lebanon has been often characterized by having followed emergency strategies in urban services planning instead of longer terms approaches; - The application of the national reform in the water sector has been often too much regionally and locally differentiated because of negotiation and adaptation to local formal and informal powers.
<p>Alles, C., 2012. The Private Sector and Local Elites: The Experience of Public–Private Partnership in the Water Sector in Tripoli, Lebanon. <i>Mediterranean Politics</i>, 17(3), pp.394–409. Available at: http://www.tandfonline.com/doi/abs/10.1080/13629395.2012.725303 [Accessed September 10, 2014].</p>	<p><i>Analysis of the impact that the insertion of a private operator in Tripoli (Ondeo from 2003-2007) had on local consolidated structures of power and clientelist networks.</i></p> <ul style="list-style-type: none"> - Law 221 has been promoting private sector participation in water sector; following New Public Management conceptual framework, participation of private sector can be a solution to reduce corruption and cronyism in public administration. In Lebanon it has been proposed as a way to isolate the sector from private interests; - Local elites have always intervened in water sector by providing services to population (and the poor services of WEs have been guaranteeing their role) and using public administration as a way to reinforce their patronage network; - controlling water authorities employment is a way also to cover fraudulent practices for “clients” of patronage; - increasing of controls through a fraud management policy promoted by the private contractor has made “the recourse to a local leader more necessary for illegally connected households”; - customer services were reinforced also with customer desks, to improve transparency and reduce corruption within the water authority as the interactions with the customers were now happening in public instead of in the privacy of the offices; - Area of collectors were rotated in order to prevent establishing strong links with inhabitants and local notables; - Contrast between Ondeo and Tripoli Water Authority for the



	<p>management of the contract (in a not clear legal environment) finally brought a competition between the two parties for achieving the support of local elites;</p> <ul style="list-style-type: none"> - If the introduction of private operator disrupted some traditional clientelism networks through the introduction of new management practices, others links of patronage were established to receive political support at higher level showing a strong capacity of adaptation of local elites to the new situation.
<p>Alles, C. & Brochier-Puig, J., 2014. Entre centralisation et appropriation locale. <i>Etudes rurales</i>, n°192(2), pp.97–115. Available at: http://www.cairn.info/article.php?ID_ARTICLE=ETRU_192_0097 [Accessed December 29, 2014].</p>	<p><i>Analysis of centralization process of public water services promoted by the reform of the sector (through the creation of Regional Establishments) against pre-existing local forms of managements through committees.</i></p> <ul style="list-style-type: none"> - The reform in the water sector has meant for many communities especially in remote areas, the “expropriation” of water services previously managed by local committees toward a regional management that has just been perceived as a willingness of the Central State to affirm its own central role against local interests; - In the North Establishment Area, from 36 committees previously existing before the reform of the sector, still 17 were existing in 2012; - From a survey done with the local population, the pre-existing committees were charging an inferior tariff in relation to the Establishment and offering more reactive services in case of problems.
<p>Dewailly, B. et al., 2004. Pouvoirs locaux et decentralisation en periode de (re)construction etatique. Les cas du Liban et de la Palestine ; etude comparee,</p>	<p><i>Comparative analysis of centralization/decentralization processes in Palestine and Lebanon, two countries characterized in the nineties respectively by processes of construction from the top of a new State or re-construction of a State after the civil war.</i></p> <ul style="list-style-type: none"> - The reconstruction of the state has been characterized in Lebanon by a need of recognition of a central authority after the disaggregation of the state and of the society during civil war years; - The participation of local population has been incentivized just with measures of deconcentration not real decentralization; - The municipalities have shown to do not represent a propulsive element with capacity to promote local propositions, but instead to be herself an entity often fragmented by internal social fractures and formal and informal allocation of clientelist powers; - Municipal financial dependency from central governments has contributed to large dependency in terms of power and decisions;
<p>Ghiotti, S.S., 2004. Le modèle français de gestion de l’eau est-il toujours synonyme d’innovation ? L’exemple de la réforme de la politique de l’eau au Liban. <i>Cybergeog: European Journal of Geography</i>, pp.1–6. Available at: http://cybergeog.revues.org/1318?lang=en.</p>	<p><i>Impact on Lebanese water sector of the application of an IWRM approach and especially the French approach of management by basin areas.</i></p> <ul style="list-style-type: none"> - The division of the territory in 4 establishments has been done in order to have areas and population large enough to guarantee financial viability of the establishments; - This division has also been done with the objective to obtain international support from Donors and interest of private operators to the Lebanese water market, especially for the Beirut and Mount Lebanon area;

	<ul style="list-style-type: none"> - This separation has accentuated already existing inequities between access to services in an already fragmented nation;
<p>Majzoub, T., 2011. Water Laws and Customary Water Arrangements. , pp.137–152.</p>	<p><i>Regional review of possibilities and challenges for integrating customary water laws in new legislation to promote IWRM approach in Arab countries.</i></p> <ul style="list-style-type: none"> - “In most Arab states, legislation is often unresponsive to the demands for stakeholders and civil society participation. Moreover, water management is usually in the hands of institutions implementing a top-down approach, which has increasingly been questioned for its lack of legitimacy and effectiveness”; - “Institutional reforms need to be introduced through a participatory and consultative process, involving formal and informal arrangements, to develop understanding and ownership of the change process”; - “Effective reforms require an appropriate legal framework to provide a sound basis for a more participatory form of bottom-up water governance involving water users and civil society institutions. Enhancing the capacity of all stakeholders requires intensive training and public awareness campaigns”.
<p>Makhoul, J. & Harrison, L., 2002. Development perspectives: Views from rural Lebanon. <i>Development in Practice</i>, 12(5), pp.613–624. Available at: http://www.tandfonline.com/doi/abs/10.1080/0961452022000017623 [Accessed September 10, 2014].</p>	<p><i>Evaluation of development projects implemented in rural areas of Lebanon paying particular attention to inclusion and participation approaches proposed by external NGOs and their perception by local populations.</i></p> <ul style="list-style-type: none"> - “The rhetoric of recipient participation and gender sensitivity may be found in NGO documents in Lebanon, but evidence suggests that these principles are not adhered to in practice”; - “Community representation and participation are still not being achieved in practice, despite recognition of their importance by development agencies. - The views of less powerful men outside the wasta network (local power dominated by elites), are frequently ignored, as are the views of women because their incapacity to communicate with the tool of development practitioners; - If development agents are not aware of these issues of power, and do not recognize that they are often considered to be part of the wasta network, their projects run the risk of increasing existing divisions and conflicts.
<p>Verdeil, E., 2008. Water and electricity networks between stress and reform: from post-civil war reconstruction to the new Lebanese wars. <i>The Politics and Planning of Destruction and Re-construction in Lebanon. The Politics and Planning of Destruction and Reconstruction in Lebanon.</i> Available at: https://hal.archives-ouvertes.fr/halshs-00371519/ [Accessed December 26, 2014].</p>	<p><i>Analysis about how water and electricity supply is linked with process of territorial fragmentation after the civil war.</i></p> <ul style="list-style-type: none"> - “The inequality of supply between regions and social groups is not the result of technical hazards but a revelator of socio-economical discrepancies, and the product of political regulations regarding the provision of water and electricity.” - “During the war infrastructure provision has been used as a political weapon in the hands of militias that controlled a fragmented country”. - After war investments in infrastructures have been spatially unequal accentuating the fragmentation - The implementation of after war reforms in water sector were highly dependent on locally rooted social and political forces; - The fraud is a persisting problem especially in remote areas where relation of patronage are preventing enforcement of sanctions, but, contrary to widely circulated assumptions,



	<p><i>“social and confessional dimension do not play an important role on the fraud”;</i></p> <ul style="list-style-type: none"> - In electricity sector, in Beirut (2002-2005) the government assigned to a private firm the task of reading the meters, of distributing the bills and collecting the fees, as well as of detecting the fraud and fixing it. This experience shown important results in increasing collection rates and reducing fraudulent connection but to achieve this collaboration with local leaders, interior security forces (ISF) and also Hezbollah, in certain areas, has been necessary in order to enforce sanctions and promote legality. The contract has then been terminated for not clear reasons; - The same experience has not been successful in other remote areas in Bekaa and North. Reasons for this has been attributed to flaw incentive mechanisms for the collectors, more protection of illegal connections coming from local leader and weak coordination with ISF; - Poor services are affecting in a different way poor and rich people, not just in terms of money but also in stress and time as the last ones have the possibility to develop alternative strategies less time-consuming for them.
<p>Verdeil, É., Fere, C. & Scherrer, F., 2009. De la rétroaction entre différenciation territoriale et modèle universel des services urbains en réseau: Les enseignements du cas libanais. Flux, n° 75(1), pp.27–41. Available at: http://www.cairn.info/article.php?ID_ARTICLE=FLUX_075_0027 [Accessed December 28, 2014].</p>	<ul style="list-style-type: none"> - “Le Liban est un pays dont la fragmentation sociale, le poids des communautés et les lignes de fractures géopolitiques, et partant, la faiblesse de l’État, sont devenus légendaires, à tel point que toute explication de l’inefficacité de l’action publique, notamment urbaine, y est inévitablement renvoyée en dernière instance à son idiosyncrasie politique et territoriale.” - “ la reconstruction libanaise s’est inscrite dans un mouvement à rebours de rattrapage du temps perdu [pendant les années de la guerre, ndr] en matière de généralisation du modèle universel, tout en louvoyant avec les injonctions réformistes des bailleurs de fond, et sans percevoir que la diversité territoriale qui s’était installée entre-temps n’était plus épiphénoménale, mais consubstantielle”

1.1.7 Participation

<p>Abdel-Massih, Y., 2005. Public Participation Programme : The Akkar watershed study. , pp.135–139.</p>	<p><i>Analysis of a public participation program for watershed management in North Lebanon.</i></p> <p><i>Recommendations for implementing public participation in environmental projects</i></p>
<p>El Asmar, J.-P., Ebohon, J.O. & Taki, A., 2012. Bottom-up approach to sustainable urban development in Lebanon: The case of Zouk Mosbeh. Sustainable Cities and Society, 2(1), pp.37–44. Available at: http://linkinghub.elsevier.com/retrieve/pii/S221067071100062X [Accessed September 10, 2014].</p>	<p><i>The study comments possible positive effects due to participation of citizens in planning and decisional processes related to implementation of environmental policies in the Municipality of Zouk Mosbeh in Central Lebanon.</i></p> <ul style="list-style-type: none"> - “ The bottom-up or participatory approach to sustainable development has hardly been tested for urban development and management in Lebanon.”;
<p>DAI - USAID, 2012. Lebanon Water and Wastewater Sector Support. , (March).</p>	<p><i>Quarterly report of LWWSS support program for water and wastewater sector promoted by USAID.</i></p> <ul style="list-style-type: none"> - A customer survey conducted in Bekaa in 2010 shows that



	<p>60% of people are not satisfied with services and 80% with customer services;</p> <ul style="list-style-type: none"> - “This lack of satisfaction with services and lack of trust in the WE becomes a chicken-and-egg scenario: which comes first, revenue or service enhancement?” - “As a critical step in breaking this cycle, the WE must establish trust and confidence in their consumers by improving their customer service system”.
<p>ESCWA, 2010a. Comparative analysis of civil society participation in public policy formulation participation in public policy formulation,</p>	<p><i>Analysis of role, possibilities and constraints for civil society participation to public policies definition in the Arab Region. Case studies about civil society participation in some Arab Countries (including Lebanon).</i></p> <ul style="list-style-type: none"> - “In the Arab region, some consider civil society as a western cultural heritage which does not pertain to Arab societies dominated by tribal ties and sectarian fanaticism. For instance, the use of “local community” to refer to civil society is sometimes preferred because local communities or demographic groups (based on confessional, racial, ethnic affiliations or others) are outside the public and private sectors, defending their interests and promoting principles that may include, inter alia, political participation. Therefore, they are known as “local community” akin to civil society.”
<p>ESCWA, 2010c. Expert Group Meeting To Review Publication Of Comparative Analysis Of Civil Society Participation In Public Policy Formulation In Selected Arab Countries Beirut, 1-2 DECEMBER 2010,</p>	<p><i>Recommendations and comments from experts group meeting regarding ESCWA publication about civil society participation in public policy formulation.</i></p> <ul style="list-style-type: none"> - “it is hard to talk about participation and its impact without having a space where this participation takes place, without having institutional mechanisms where stakeholders evolve and interact, and without having frameworks to follow up initiatives, evaluate their outcomes and use them to enhance the representation of interests and to strengthen the Government-civil society relationship.”
<p>ESCWA, 2013. Social participatory development section information kit effective indicators to measure public civic participation. , (June).</p>	<p><i>Information kit about PCP (Public Civic Participation) published by ESCWA at benefit of Arab Countries.</i></p>
<p>Rault, P.K., 2009. Reconsidering public participation and governance style in Integrated Water Management: Moving towards pragmatic contextual participative strategy. , (May), pp.1–6.</p>	<p><i>Survey about public participation in IWRM in 4 different Arab Countries (Lebanon, Turkey, Syria and Jordan).</i></p> <ul style="list-style-type: none"> - Ladder of governance based on increasing level of power sharing from Informative, consultative up to Cooperative and Emancipator; - “In Lebanon, there is a strong consensus on the current role of the Authority as ‘authoritative informative’. The desirable roles vary equally from ‘closed authoritative’ to ‘cooperative constructive’; - In all interviewed countries the perception about the actual level of participation is similar, and the identified obstacles in relation to the Authority for improving situation are similar: scarcity of accountability; lack of experience in public participation, lack of horizontal and vertical dialogue between different level of the Administration; poor knowledge about stakeholders; - Lebanon has a specificity a particular lack of trust between actors: public administration perceived as corrupted, but also lack of trust between stakeholders because of civil war heritage;



	<ul style="list-style-type: none"> - Triangle of participation (TAP model): stakeholders / accountability of decision makers / transparency of Decision making process
<p>Stevenson, T.N., 2007. Informal consent: the complexities of public participation in post-civil war Lebanon.</p>	<p><i>Study about post-civil war participative planning in Lebanon through interviews of different planners involved in the reconstruction process. Applicability and critics to the “western” concept of participation in the Lebanese post-conflict scenario.</i></p> <ul style="list-style-type: none"> - “public participation can also be purposefully manipulated or inadvertently influenced to create a token or symbolic process that exerts various forms of power and control over the population.”; - public participation in planning it is not structurally organized and it is overseen by public actors. Mainly for this reason it often just arise as negative feedback from public’s reaction and it is not properly encouraged in pro-active terms; - Structure of Lebanese society allows informal participation of just high level population because of extended family and personal relationships; - Knowledge of local socio-cultural institutions and values especially in a post civil war situation are necessary for implementing any public participation activity; - Interviewed public planners have similar perception about participation affirming that public is not mature enough; government is not equipped to handle public involvement; institutional structure for planning is too complex and problematic to encourage and enable participation; system is too politicized; - Interviewed citizens pointed out that participation is complex because of fragmentation of society; public service are not educated to the cultural concept of participation; Lebanese mentality is too distrustful because of the civil war; system is too politicized and people are not educated enough to defend their rights; - Participation for public services could contribute in promote reconciliation between different parts of a fragmented society around common needs; - “ Planners would have to work hard to build the trust of the public in a participatory process that provides feelings of safety and immunity to participants.” - Centralized governmental planning and limitations of transfers to municipalities reduce the effective possibilities and potentialities of public participation at local level;

1.1.8 Customer services

<p>Report, Q., Agency, U.S. & Development, I., 2012. Lebanon Water and Wastewater Sector Support Lebanon Water And Wastewater Sector.</p>	<p><i>Quarterly (Oct 2011-Dec 2011) progress report of LWWSS project (Lebanon Water and Wastewater Sector Support)</i></p> <ul style="list-style-type: none"> - “ The customer service orientation of the WEs is in its seminal state. Often the customer is treated as though he or she should be happy to receive water at all.” - “ However, all WEs lack a comprehensive and on-going effort to improve communications and their relationship with customers.” - ERP system, that is under development within the LWWSS project, should provide the customer service desk operator to have at disposal all the information he needs for respond
---	--



	to customer questions and will support the Establishments, especially lower level managers, to make informed quick decisions
--	--

1.1.9 Quality of the water

<p>Habib, R.R., Elzein, K. & Hojeij, S., 2013. The association between women's self-rated health and satisfaction with environmental services in an underserved community in Lebanon. <i>Women & health</i>, 53(5), pp.451–67. Available at: http://www.ncbi.nlm.nih.gov/pubmed/23879457 [Accessed September 10, 2014].</p>	<p><i>Research conducted in the Municipality of Bebnine to determine possible links between women's self-rated health and different socio-economic and environmental health indicators, in particular quality of the water consumed.</i></p> <ul style="list-style-type: none"> - Positive relationship between perception of water quality and self-rated health; - “Water odor, taste and cleanliness guide individuals water and consumption purchasing patterns” - “perceptions of water quality do not appear to be influenced by objective condition of water quality. Instead, other factors such as social understandings of community environmental services may have framed residents' perceptions about water quality”; - “if community perceptions of water quality form around prominent and reasonable health concerns, it may be very difficult for water providers to convince neighborhood residents of water safety, even after infrastructural improvements are made. Overcoming these obstacles requires service providers to develop well-designed and tested communication strategies to persuade residents of the efficacy of infrastructural improvements”.
<p>Korfali, S.I. & Jurdi, M., 2009. Provision of safe domestic water for the promotion and protection of public health: a case study of the city of Beirut, Lebanon. <i>Environmental geochemistry and health</i>, 31(2), pp.283–95. Available at: http://www.ncbi.nlm.nih.gov/pubmed/18958397 [Accessed December 30, 2014].</p>	<p><i>Study about domestic water profile in the city of Beirut. The research has been collecting water samples from the different household water sources (Public scheme, private wells and bottled water).</i></p> <ul style="list-style-type: none"> - It is probable that poor water quality provided in cities like Beirut is also related to negative pressures due to zoning management; - It is recommended to include the management of solid waste as an integral part within National Water Management Plan in order to minimize contaminations of water resources; - Improve awareness of the citizens is essential as the lack of trust in public services often push them to recur to other water sources (more costly and not always of a better quality); - To improve awareness and trust it is necessary to let citizens have access to public quality control data and to prepare short educational messages for sharing this information and simple techniques for water handling at home.
<p>Semerjian, L.A., 2011. Quality assessment of various bottled waters marketed in Lebanon. , pp.275–285.</p>	<p><i>Analysis of samples of different brands of bottled water commercialized in Lebanon.</i></p> <ul style="list-style-type: none"> - Bottled water in Lebanon it is not necessarily safer than tap water. - Analysis conducted on different commercial brands (32) shown that almost 20% of the samples contained total coliforms. - The rise in bottled water consumption in Lebanon has been hugely increasing in the last 10 years and Lebanon is at the 8th place in the world for per capita consumption of bottled



	<p>water (110,9 l/year/capita);</p> <ul style="list-style-type: none"> - Marketing strategies for promoting bottled water for sure have played a role in the general perception of the population about the real quality of the water provided by public services.
--	---

1.1.10 Public-Private-Partnership (PPP)

<p>ELARD, 2013. Evaluation Retrospective Du Projet Alimentation En Eau Potable De Tripoli,</p>	<p><i>Evaluation conducted by a Lebanese consultant about the experience of delegated management conducted by the French Company ONDEO in Tripoli from 2003 to 2007.</i></p> <ul style="list-style-type: none"> - Law 221 introduces the concept of IWRM, but participation of users, municipalities and private sector are not foreseen in the law; - Even if law 228 inserts the possibility of PPP contracts, the bylaws for its actuations have never been properly emitted; - National institutions (CDR and MEW) have a positive perception of the achievements of the contract; - Local actors (Municipality of Tripoli and NWE-North Water Establishment) are against the partnership with private sector in the management but the adducted reasons are mainly related to an ideological aversion to the “exploitation of water as a public resource”, not based on managerial aspects; - The delegated management experience has been institutionally a failure because the actors that have been negotiating the contract (CDR and MEW) are not those that have been then involved in the collaboration for the execution of the contract (NWE in particular, but also Municipality of Tripoli); - For the future the contracts of technical assistance are not recommended because they cannot install management practices within the Utilities. Service Contracts are more effective for this purpose; - It should be created a culture of collaboration and trust between the parties, before entering in a service contract. Lack of culture is the main problem; - Better implication of Municipalities (even under the form of Union of Municipalities) would be recommendable even if their institutional weakness should be recognized before putting too many expectations on them;
<p>GWP-Med & OECD, 2010. Framework conditions for Private Sector Participation in Water Infrastructure in Lebanon List of Acronyms.</p>	<p><i>Study about current situation and possibilities for participation of private actors in water and wastewater sector in Lebanon.</i></p> <ul style="list-style-type: none"> - Financing gap in the implementation of NWSS has revised interest of the Government for the participation of Private Sector; - For the time being, with the only exception of Tripoli water contract (ONDEO) the participation of private sector in Lebanon has remained confined to small service contracts for conducting specific tasks in operation and maintenance of some infrastructures, like pumping stations and small wastewater treatment plan; - The Lebanese Legal framework does not allow advanced forms of participation of private sector like concessions or lease/affermage contracts; - Evaluation of the achievements of the only private contract



	<p>experienced up to now in Lebanon about management of Tripoli water services (ONDEO 2003-2007) has been controversial;</p> <ul style="list-style-type: none"> - Institutional complexity, fragmentation of responsibilities between the company and the Establishment and weakness of monitoring and arbitrating mechanisms, have been indicated as the factors that most impacted the low outcomes of Tripoli experience, - Law 221 has been preparing the environment for introduction of private sector but did not tackle some of the major problem of water sector like fragmentation of planning and investment; this institutional ambiguity is perceived as political and regulatory risk for privates that could be interested in investing in the sector; - Political interference and diffused resistance to pay by customers can be seen as obstacles by privates; - Cost-recovery rates are difficult to evaluate because of absence of water metering, leakage detection mechanisms and reliable customer databases; - Ministry of Energy and Establishments are considered as lacking capacities and human resources for monitoring big private contracts in water and wastewater sector; - Short term contracts (low risk for private sector) could be used as pilot projects for enhancing capacities within government and local authorities;
<p>Touzi, S., 2011. Policy dialogue to assess the framework conditions for PSP in Water Infrastructure Results from Lebanon,</p>	<p><i>Presentation and comments about the main findings present in the GWP-Med research.</i></p> <ul style="list-style-type: none"> - Limited experience in PPP contracts. It should be mentioned the one in the South for financial and accounting systems operation; - The possibility of participation of private sector should be verified with large consultation in order to reduce political risk of interference and change in legislation;
<p>Yamout, G. & Jamali, D., 2007. A critical assessment of a proposed public private partnership (PPP) for the management of water services in Lebanon. , pp.611–634.</p>	<p><i>Assessment of feasibility for PPP contracts in Lebanon especially for addressing Beirut water supply deficiencies in service.</i></p> <ul style="list-style-type: none"> - “ While the lack of quality reliability of the publicly supplied water is generally a matter of perception, rumors, and trust in the public system, the lack of quantity reliability is a more tangible issue”. - Management and lease contracts would leave all the responsibility of investment on the Government of Lebanon side, so it is not in line with the objective of covering the gaps in funding for NWSS; - BOT contracts are the most suitable for Lebanese institutional and political environment (property returns in public hands at the end of the contract) and their application should be further studied and tested;
<p>CIH, 2013. BLUE GOLD 5-YEAR PLAN, Available at: www.bluegoldlebanon.com</p>	<p><i>Publication proposed by different private stakeholders to promote more participation of private sector in Lebanese water and wastewater sectors. Special attention is given to the promotion of legal and public support for allowing private participation for new dam projects all around the country. The document is presented as initiative of civil society promoting more transparence in the management of water sector by creating new institutions that will guarantee more participation of</i></p>



	<p><i>private stakeholders and of a generic civil society in decisional and control processes within the water sector.</i></p> <ul style="list-style-type: none"> - Average Household pays 700 USD a year for water supply; with the Blue Gold project they will pay an average of 380 USD/year for domestic water that will get up to 500 USD/year if water treatment fees are added; - Establishments are unable to recover their total costs for problems related with lack of staff, lack of commercial and technical competencies, unaffordable pricing, low collection rates and irregular connections; - Promotion of a National Water Council Board where half of the members will be from Ministries and half from citizens (private sector and NGOs); - Promotion of a Water Regulatory Authority under the Ministry; - Creation of a National Monitoring Centre to consolidate and share all the information relative to the sector; - Creation of non-governmental Watch Dog Association from the civil society that should be founded in order to monitor the performance of different stakeholders and contribute to propose laws, rules and regulations.
--	---

1.1.11 Environment

<p>Nader, M.R., Salloum, B.A. & Karam, N., 2008. Environment and sustainable development indicators in Lebanon: A practical municipal level approach. <i>Ecological Indicators</i>, 8(5), pp.771–777. Available at: http://linkinghub.elsevier.com/retrieve/pii/S1470160X07000854 [Accessed September 10, 2014].</p>	<p><i>Description of the participatory process used for the definition of a set of indicators for Environment and Sustainable development for Lebanon.</i></p> <ul style="list-style-type: none"> - Using a participatory approach involving Municipalities and other local stakeholders almost half of the proposed indicators (44 on 110) are coinciding with those previously identified by the Government and 31 with those proposed by Blue Plan project; - Lebanon is a country where there is a general lack of data at national but also at local level; the study highlights the necessity to concentrate efforts in raising awareness of all the stakeholders involved in Environmental conservation and in particular on building capacities at Municipal level in indicator science in order to provide them the capacities to propose and follow-up specific indicators for supporting and promoting sustainable development policies at local level (socio-economics; environmental and for sustainable development policies and politics).
<p>Vlaardingerbroek, B. & Taylor, T.G.N., 2007. The Environmental Knowledge and Attitudes of Prospective Teachers in Lebanon: A Comparative Study. <i>International Research in Geographical and Environmental Education</i>, 16(2), pp.120–134. Available at: http://www.tandfonline.com/doi/abs/10.2167/irgee213.0 [Accessed September 10, 2014].</p>	<p><i>Comparative study between Lebanese and Australian primary and secondary students about environmental knowledge and attitudes</i></p> <ul style="list-style-type: none"> - Knowledge of environmental issues is considered as directly associated with the willingness to accept governmental legislation about environment; - Formal education is recognized in both countries by the students as the most important source of information for students before television/radio and newspapers and magazines (same patterns in the two countries) and students shows interest in environmental issues to a similar degree in the two countries, but with different knowledge about general main issues (Lebanese lower level);



	<ul style="list-style-type: none"> - In relation to the Lebanese: “they live in society where environmental issues have not enjoyed the high public profile that they have done in many western societies [...], as remarked by one student “We have other things on our minds, like bombs”. - “Lebanese students were less likely to acknowledge the need for people to change their lifestyles for the sake of the environment. This could be a reflection of the generally much lower public profile that environmental issues have in Lebanon compared with Australia.” - Teachers lag significantly behind their Australian equivalents in terms of knowledge of environmental issues; - Environmental topics need to be more effectively integrated in school curricula and focus on national environmental issues beyond their immediate proximity.
<p>Abbas, N.H. et al., 2013. Perceptions from the Public and Private Sector on Trust and Cooperation in the Field of Environmental Management in Lebanon. <i>Academic Journal of Interdisciplinary Studies</i>, 2(8), pp.571–581. Available at: http://www.mcser.org/journal/index.php/ajis/article/view/775.</p>	<p><i>Study conducted with Lebanese public and private sector about the role of trust and cooperation in the context of environmental management in Lebanon.</i></p> <ul style="list-style-type: none"> - While ‘trust’ and ‘cooperation’ are referred to in literature, it is not systematically studied in the case of Lebanon. - “Citizens are willing to comply with rules and regulations, to adjust their behavior, if and when they have confidence in private or public sector organizations to be able to produce a beneficial event or to provide beneficial services”. - “Lack of trust, whether it is within the stakeholders of public sector, between the stakeholders of public and private sectors or by the citizen toward the stakeholders of public or private sector, is affecting negatively the environmental management process in Lebanon”.