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LITANI RIVER BASIN MANAGEMENT SUPPORT PROGRAM

RESTRUCTURING THE LITANI RIVER AUTHORITY

May 2012

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The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government

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ACRONYMS

CoM	Council of Ministers
GIS	Geographic Information System
GOL	Government of Lebanon
IRBM	Integrated River Basin Management
IWRM	Integrated Water Resources Management
IRG	International Resources Group (US consulting firm, prime LRBMS contractor)
LRA	Litani River Authority (also called Office National du Litani)
LRB	Litani River Basin
LRBMS	Litani River Basin Management Support Program
ONL	Office National du Litani (also called Litani River Authority)
M&E	Monitoring & Evaluation
MEW	Ministry of Energy and Water
NGO	Non Governmental Organization
O&M	Operation & Maintenance
TA	Technical Assistance
USAID	United States Agency for International Development
USBR	United States Bureau of Reclamation
WUA	Water User Association

EXECUTIVE SUMMARY

The Litani River Authority (LRA) was created more than 50 years ago as a development/engineering agency to harness water resources of the Litani River Basin (central and south Bekaa) for the benefit of Lebanon. The construction envisaged under the basin development plan has long since been completed, and the LRA has been operating Qaraoun Dam and associated structures (hydropower plants and irrigations schemes) ever since.

Today a host of water-related issues have emerged in the Litani River Basin and threaten the current water uses and the overall socio-economic development and livelihoods of communities in the basin. These new challenges include:

- (1) Deteriorating quality of both ground and surface water;
- (2) Falling groundwater tables due to over-abstraction; and
- (3) Growing demands for surface water which threaten to outstrip the available supply.

These problems are compounded by the lack of clear roles among the multiple governmental agencies involved in water management, the inadequacy of current regulatory mechanisms for water quality and groundwater withdrawals and the absence of a regular mechanism for allocating and re-allocating surface water resources.

The LRA, because of its current water monitoring functions, its presence in the field, and its technical capacity, is the only candidate to coordinate water management in the Litani River Basin. This implies updating LRA's mandate to cover new functions, notably in terms of monitoring (both surface and groundwater), authorizing/controlling withdrawals and releases, and awareness and communications with water users and their representatives, and correspondingly adjusting the organizational structure and staffing.

The current organizational structure, based on 4 Directorates – Technical Affairs, Hydropower, Irrigation, and Administration – remains an appropriate base for restructuring. However the internal structure of these Directorates, particularly Technical Affairs and Administration, need to be thoroughly modified.

- Technical Affairs should be reorganized, with new units added to the Water Resources Department to carry out comprehensive basin planning and water and wastewater permitting. The Rural Development Department (retitled the Research and Extension Department) needs to be reorganized into a set of field-based multi-disciplinary teams to

support farmers in LRA-supplied systems. And certain largely administrative functions should be shifted to the Administrative Department.

- Administrative Affairs needs to be streamlined, with certain highly-specialized tasks, such as legal services and IT hardware support, outsourced under contract. In addition, accounting functions, currently outside any of the four Directorates, should be incorporated into Administrative Affairs.
- The Hydroelectricity Directorate is structured reasonably to perform its tasks at present.
- The Irrigation Directorate requires modest changes in the South Bekaa Department to streamline operations and reorganize them into two Bureaus – one dealing with operations and exploitation and the other with maintenance.

The proposed changes to the LRA's organizational structure presented here are intended as a basis for discussion to position the LRA as main water management agency for the Litani River Basin, adapting its structure to new functions such as authorizing and controlling withdrawals and releases.

A proposed amendment to the LRA law, currently being drafted, will call for such a restructuring. Once a new structure is in place, a next stage challenge will be to place appropriate staff in each unit of the new structure and to provide training in both the needed technical skills and in modern management practices to unit managers. This would be an area very suitable for a donor-assisted capacity development program.

ملخص تنفيذي

أنشئت المصلحة الوطنية لنهر الليطاني منذ أكثر من خمسين سنة كوكالة تنموية وهندسية لاستثمار الموارد المائية في حوض نهر الليطاني (البقاع الاوسط و الجنوبي). ونفذت آنذاك الإنشاءات التي صممت ضمن خطة انماء الحوض ولا تزال المصلحة الوطنية لنهر الليطاني تشغل وتدير سد القرعون والمنشآت التابعة له (معامل التوليد الكهرومائية وغيرها من المشاريع).

وبمرور الزمن، برزت مجموعة من المشاكل المتعلقة بالمياه في حوض نهر الليطاني، وباتت تهدد استعمالاتها الحالية، والإنماء الإجتماعي الإقتصادي والثروة الحيوانية في تجمعات الحوض السكانية، وتتضمن التحديات ما يلي:

١. تدني وتضرر النوعية سواءً في المياه السطحية او الجوفية؛
٢. انخفاض مستوى المياه الجوفية بسبب الإستنزاف الجائر لها؛
٣. تزايد الطلب على المياه السطحية، مما يهدد امكانيات المياه المتاحة للشرب.

وترافقت هذه المشاكل مع عدم وضوح ادوار كل من مؤسسات ودوائر الدولة التي تتعاطى إدارة المياه، وعدم ملائمة الآليات التنظيمية الحالية العائدة لنوعية المياه، والكميات المسحوبة من الطبقات الجوفية، وفقدان التدابير التنظيمية لتخصيص وإعادة تخصيص الموارد المائية السطحية.

وأخذاً بعين الإعتبار مهامها بمراقبة اوضاع المياه الحالية، ووجود عناصرها ميدانياً وامكانياتها الفنية تعتبر المصلحة الوطنية لنهر الليطاني المرشح الوحيد لتنسيق ادارة المياه في حوض النهر. إنّما هذا يتطلب تحديث مهام المصلحة المذكورة لتغطية وظائف جديدة، خاصة فيما يعود لمراقبة المياه الجوفية والسطحية، وإعطاء التراخيص لسحب المياه، وتصريفها ومراقبتها إضافة الى توعية مستعملي المياه وممثليهم والتواصل معهم وبالتوازي تعديل الهيكلية الإدارية والتوظيف.

وتبقى الهيكلية التنظيمية المبنية على اربع مديريات أساساً ملائمة لإعادة التنظيم، وهذه المديريات هي:

١. مديرية الشؤون الفنية؛
٢. مديرية الإنتاج الكهرومائي؛
٣. مديرية شؤون الري؛
٤. مديرية الشؤون الادارية.

إنّما هناك حاجة الى تعديل جذري للتنظيم الداخلي لهذه المديريات ولا سيما مديرتي الشؤون الفنية والشؤون الادارية.

ويقتضي إعادة تنظيم مديرية الشؤون الفنية بشكل تضاف إليها وحدات جديدة في مصلحة الموارد المائية لتتمكن من وضع مخطط شامل للحوض وإعطاء التراخيص للمياه والصرف الصحي. أمّا مصلحة الإنماء الريفي (التي عدلت تسميتها لتصبح مصلحة الأبحاث والإنماء) فهي تحتاج إلى إعادة تنظيم لتضم مجموعة من الفرق المتعددة النشاطات التي تعمل ميدانيا كي تساعد المزارعين المستفيدين من شبكات ريّ المصلحة الوطنية لنهر الليطاني، كما وأنه يمكن تحويل وظائف ادارية عديدة الى المصلحة الادارية.

اما بالنسبة لمديرية الشؤون الإدارية فيقتضي تنظيمها وتكليفها بالقيام بمهام ذات الاختصاص العالي كالقضايا القانونية والتجهيزات المعلوماتية التي تلزم بموجب عقود إلى القطاع الخاص إضافة الى الوظائف المحاسبية التي تقع حاليا خارج المديرية الاربع المذكورة سابقا، ويقتضي دمجها ضمن المديرية الادارية.

فيما يعود لمديرية الإنتاج الكهربائي فهي منظمة بشكل مقبول لإنجاز المهام الملقاة على عاتقها في الوقت الحاضر.

تتطلب مديرية الريّ تعديلات بسيطة في مصلحة البقاع الجنوبي للقيام بعمليات التشغيل اليومية وإعادة تنظيم المصلحة المذكورة لتضم دائرتين: واحدة تؤمن التشغيل والإستثمار والثانية مهمتها الصيانة. إنّ التعديلات المقترحة على هيكلية المصلحة الوطنية لنهر الليطاني تشكل منطلقا لمناقشة تموضع المصلحة المذكورة لوكالة ادارة مياه رئيسية في حوض نهر الليطاني لتلائم هيكليتها الوظائف الجديدة لترخيص ومراقبة كميات المياه المسحوبة ومكباتها .

يجري حاليا تحضير مشروع تعديل قانون إنشاء المصلحة الوطنية لنهر الليطاني يتضمن إعادة التنظيم هذه. وبعد وضع الهيكلية المذكورة موضع التنفيذ، فان التحدي التالي يكون بوضع الجهاز الملائم في كل وحدة من وحدات الهيكلية الجديدة، وتأمين التدريب في الخبرات الفنية اللازمة وفي ممارسات الإدارة الحديثة الضرورية لرؤساء الوحدات المذكورة، وهذا ميدان مناسب للجهات المانحة الراغبة في تقديم برامج دعم لإنماء القدرات.

1. INTRODUCTION

1.1. AUTHORIZATION

International Resources Group (IRG) was contracted by USAID/Lebanon (Contract EPP-I-00-04-00024-00 Task Order No. 7) under the Integrated Water and Coastal Resources Management Indefinite Quantity Contract (IQC) II to implement the Litani River Basin Management Support (LRBMS) Program. The period of performance of the contract is September 29, 2009 to September 30, 2012.

1.2. PURPOSE OF THIS REPORT

The purpose of this report is to present and describe a model for restructuring the Litani River Authority (LRA). The LRA was established more than 50 years ago and still operates under a mandate defined in 1954 and an ad-hoc organizational structure that was never formally approved. In the ensuing years, the role of the Authority has undergone significant change, as have management practices and the technology used in administration and management, both internationally and in Lebanon. It is widely acknowledged that the existing structure of the Authority is outmoded and in need of modification. This report presents a model for such a restructuring.

The report was prepared by the project's external institutional consultant, Dr. Mark Svendsen, and another senior project consultant, Eng. Bassam Jabar. Both consultants interacted extensively with senior LRA staff during the process. It builds on an earlier report which analyzes and describes the present and future roles of the LRA¹. The model proposed is intended to serve as a basis for discussion and not as a definitive solution to the structural deficiencies of the LRA.

¹ LRBMS. The Role of the Litani River Authority: Present and Future: July 2010

2. BACKGROUND

2.1. BRIEF HISTORY OF THE LRA

The Litani River Authority (LRA) began life as a development and construction agency more than 50 years ago. Established in 1954² as a project implementation authority, its purpose, according to the establishing legislation, was to:

1. Execute irrigation, drainage, and potable water projects on the Litani River
2. Create a transmission network linking the major generating facilities in the country
3. Create a nation-wide electrical distribution network

The original program of work for the LRA was based on studies done with the assistance of the US Bureau of Reclamation (USBR) under the United States' "Point 4 Program"³. The USBR spent three years studying the Litani River Basin and in 1954 produced a six volume study of water resource development opportunities in the basin which included Qaroun Dam and the three-station Markaba power cascade⁴. Work under this phase of the plan was completed in 1964. The remainder of the plan remains unimplemented.

2.2. THE LRA MANDATE

The LRA does not currently have a clear explicit statement of its mission. Upon its founding in 1954, the primary mission given to it in the establishing legislation was to implement the Basin Development Plan prepared by the USBR by constructing projects related to water storage, hydropower, and electricity transmission. In 1996, a presidential decree⁵ expanded LRA's mandate to include responsibility for planning and studies for new irrigation schemes across the Litani River Basin, (LRB) and added responsibility for development and management of all irrigation projects, both large and small, in South Lebanon. Several other responsibilities were added to the LRA's workplan subsequently, typically by delegation by the MEW rather than through formal legislation. These include (1) surface water flow monitoring across the country and (2) water quality monitoring in the Litani Basin.

² Law 14 dated 14 August 1954.

³ "Point 4" was the US foreign economic assistance program initiated by President Truman after the Second World War and was the predecessor to USAID.

⁴ USBR. 1954. Development Plan for the Litani River Basin. June.

⁵ Decree 9631 dated 13 December 1996.

Although this appears to be the limit of the LRA’s formal mandate of responsibilities, in its *Master Plan* of 2003 the Authority shows that its own understanding of its mission and responsibilities is somewhat broader. In this document it describes its priority role in (1) irrigation development, (2) drinking water supply, and (3) hydropower production, but also indicates priorities of (4) preserving and protecting water resources within the LRB and (5) preserving the environment and landscape of the LRB. This suggests a role that extends beyond simply building and operating hydraulic facilities.

In June of 2010, the Ministry of Energy and Water, with the endorsement of the Council of Ministers, signed a Memorandum of Understanding with USAID to improve management of the LRB by improving the operations, management, and services of the LRA. In particular, the MOU called for building the capacity of the LRA “towards Integrated River Basin Management (IWRM)”. To build this capacity, the LRA must add new functions to its mandate and explore new ways of operating, as it transforms itself into a manager of water resources throughout the entire water cycle. In July 2010, a proposed new mission statement for the LRA was drafted and discussed by the LRA board of directors. The proposed mission statement is shown in Box 1 below.

2.3. TERMINOLOGY

A difficulty confronting conversations about organizational structure in Lebanon arises sometimes from confusion in the terms used for different organizational levels. This confusion is complicated by the simultaneous use of Arabic, French, and English terms in describing units and functions. To resolve this difficulty and to facilitate discussion, a set of standard terms has been set down here for all three languages. These are based on the accepted Arabic term for each level of organization. The Arabic terms have then been equated to standard French and English terms for the same levels. All three sets of terms are shown in Table 1.

The standard hierarchy, in English terms, is then (1) General Directorate, (2) Directorate, (3) Department, (4) Bureau, and (5) Section. These English terms are used consistently throughout this report.

Table 1. Table of terms for organizational units in Lebanon

Unit				Position				Civil Service Category
English	French	Arabic (phonetic)	Arabic	English	French	Arabic (phonetic)	Arabic	Category
General Directorate	Direction Generale	Mudiryeh Aammeh	مديرية عامة	Director General	Directeur General	Mudir Aam	مدير عام	1
Directorate	Direction	Mudiryeh	مديرية	Director	Directeur	Mudir	مدير	2-1
Department	Service	Maslaha	مصلحة	Head of Department	Chef de service	Rais Maslaha	رئيس مصلحة	2-2
Bureau	Bureau	Da'irah	دائرة	Head of Bureau	Chef de departement	Rais Da'irah	رئيس دائرة	3-1
Section	Section	Kusum	قسم	Head of Section	Chef de section	Rais Kusum	رئيس قسم	3-2
				clerks, e.g.	clerc	muharrer, kateb,	محرر، كاتب	4
				typist, driver, e.g.	dactylo, chauffeur	mustakteb, sa'ek	مستكتب، سائق	5

3. CURRENT STRUCTURE

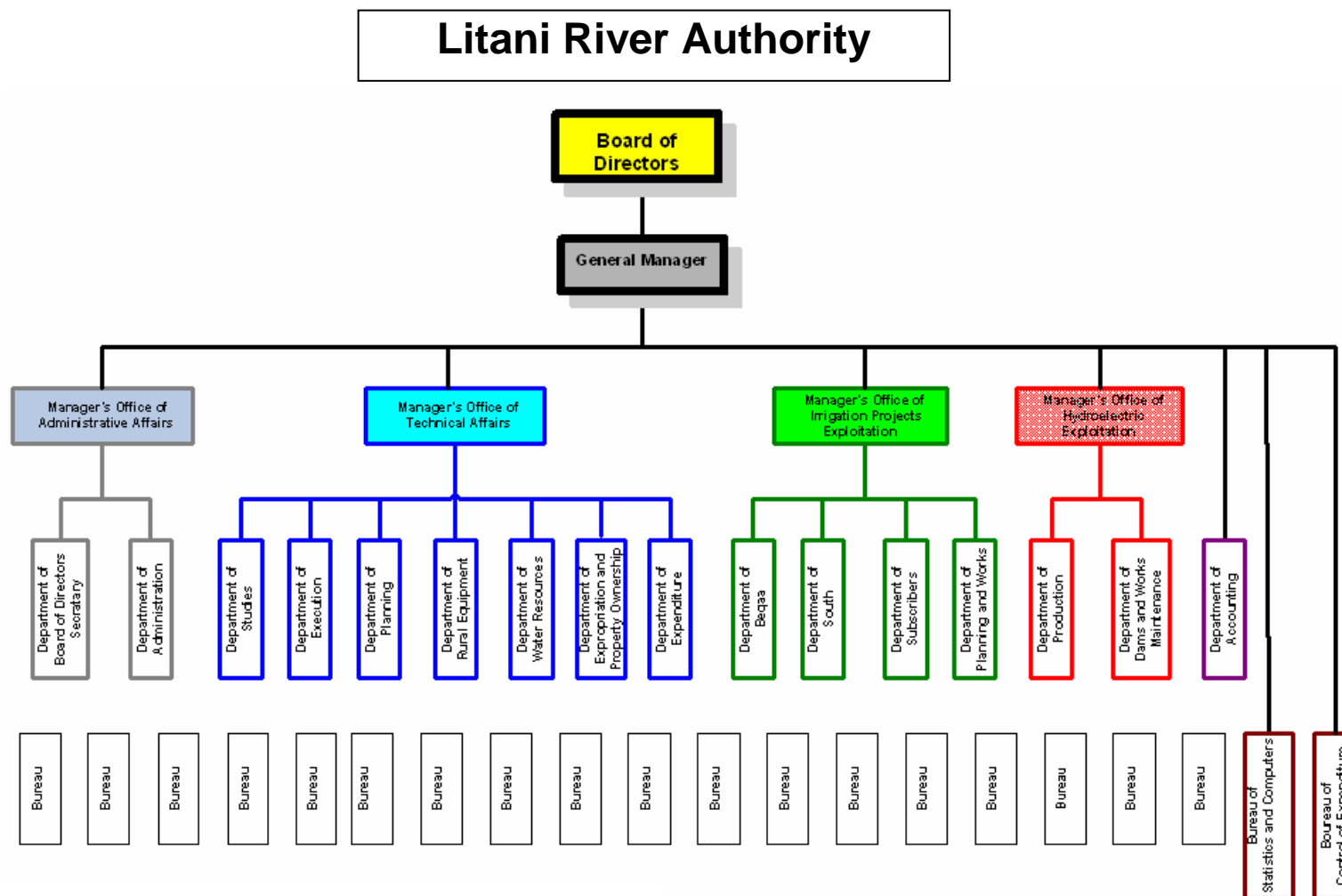
3.1. ORGANIZATION

The current structure of the LRA remains ad-hoc having never been formally approved, and has evolved over the years, this structure, assuming today the form captured by the Chairman of its Board of Directors in a paper published in 2005⁶ (Figure 1). A slightly revised structure (detailed in Annex) was presented for approbation in 2008. It consists of four Directorates, dealing with Administration, Technical Affairs, Irrigation, and Hydropower, respectively. Of these four, the Technical Directorate is the largest in terms of numbers of Departments, but not in terms of staff numbers. It is also the front line Department for addressing more recent challenges facing water management in the Litani Basin.

Perhaps because it was intended for a general audience, Figure 1 omits the LRA's budgeting and financial management units. It also does not show detail below the level of the Department. Unfortunately, no other charts depicting the current organizational structure of the LRA appear to exist. Also, because the staffing levels of the Authority are considerably lower than they were previously, there are many vacant positions in the structure and, as a result, there is a certain *ad hoc* character to current lines of accountability, based on individual workloads and competencies. The managerial gap is a critical issue. As of May 2012, only two of the five senior positions are occupied, while the three others are filled in by these same two managers. For example, the General Director has been acting in this position and at the same time acting head of the Irrigation Exploitation Directorate for many years. In addition he is now acting as Administrative Director since the incumbent retired recently. He himself is due to retire soon and no provisions exist yet for replacement and a smooth transition.

⁶ Catafago, S. 2005. Restructuring the Water Sector in Lebanon

Figure 1. Current structure of the Litani River Authority

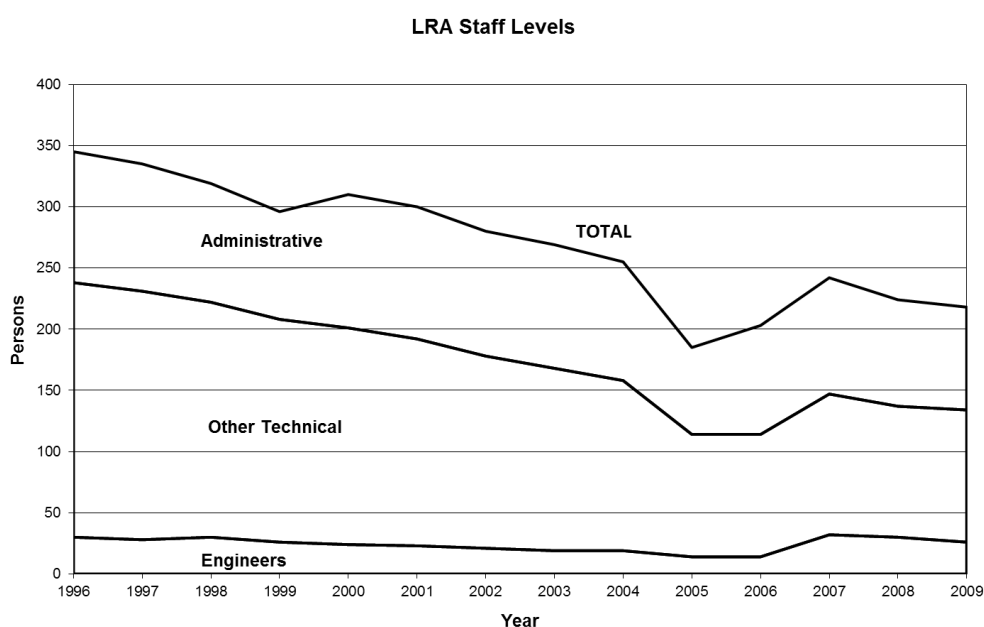


Source: Catafago. 2005.

3.2. STAFFING LEVELS

The trend in LRA staffing levels has been downward since at least 1997. Figure 1 shows staffing levels over time from 1997 to 2009. Greatest losses have been in technical staff, which declined as a share of total staff levels from 69% in 1996 to 62% in 2009, including just 26 engineers. Over the same period, the share of administrative staff increased from 31% to 38% of the total. This declining ratio of technical to administrative staff is a worrying indicator of shifting priorities within the Authority and of the declining role and importance of LRA’s technical capacity.

Figure 1. LRA staffing levels, 1996-2009



Current staffing levels of the LRA are shown broken out by department, in Table 2.

Table 2. Current LRA staffing levels

	Technical			Administrative			Total		
	Permanent	Contractual	Total	Permanent	Contractual	Total	Permanent	Contractual	Total
Arcache and Helou Plant	42	4	46	0	0	0	42	4	46
Abdel Al Plant	19		19	2	1	3	21	1	22
Production Department	3		3	1	1	2	4	1	5
Expropriation Department	4		4	0	2	2	4	2	6
Rural Development Department	1		1	9	3	12	10	3	13
Water Resources Department	3	1	4	6	8	14	9	9	18
Studies Department	5		5	1	1	2	6	1	7
Administrative Department	7		7	12	19	31	19	19	38
Bidding Department	3		3	0	1	1	3	1	4
South Lebanon Irrigation	26		26	2	13	15	28	13	41
Customer Service	0		0	2	1	3	2	1	3
Technical Department	1		1	0	0	0	1	0	1
Accounting Department	1		1	5	1	6	6	1	7
South Bekaa Irrigation Project	6		6	1	0	1	7	0	7
Total	121	5	126	41	51	92	162	56	218

Source: LRA

More than half of the current technical staff (52%) work in the three power plants operated by the LRA, while there are just 4 technical staff in the Water Resources Department and a combined total

of 10 in the Rural Development, Water Resources, and Studies Departments, which form the core of the Technical Directorate. These 10 technical specialists constitute just 8% of the current staff level. Thus in conjunction with needed changes in the structure of the Authority, there is a strong need to rebuild its diminished technical capacity.

3.3. PROBLEMS WITH CURRENT STRUCTURE

Although the existing four-part Directorate structure is sound and conforms to the basic functional needs faced by the LRS, it has a number of debilitating structural problems. One difficulty is the current imbalance among the staff levels of the different Directorates and the widely varying spans of control within each.

Current staff levels in the four Directorates vary from 34 to 71, while the average number of staff per Department under each Directorate ranges from 7 to 36. Existing staff levels and spans of control, by Directorate, are as shown in Table 3.

Table 3. Staff levels and average spans of control.

Directorate	Staff [number]	Departments [number]	Average Staff/Department
Administration	34	2	17
Technical	45	7	6.4
Irrigation	50	4	12.5
Hydroelectric	71	2	35.5
Total	200	15	13.3

The large number of Departments in some Directorates, particularly the Technical Department, should be rationalized to reduce redundancy and improve cost effectiveness. At the same time, some Departments have only two, or even one, Bureaus under them, presenting a span of control that is much too narrow. This creates an inefficient structure with too many “bosses” and not enough “workers”. Moreover, the current structure includes a number of units and positions which are no longer relevant or as important as they once were.

At the same time, some necessary functions are absent from the structure. One pressing need lies in the area of basin planning and forecasting. The LRA needs a strong capacity to model and forecast future water supplies, given changing climatic conditions, as well as future uses and needs for water in light of changing demographics, proposed new projects, and a growing number of new local abstractions of water. Flood modeling is an additional need. These capabilities currently do not exist in the LRA. Another critical need is to expand the Authority’s capacity to monitor and regulate water quality and sources of pollution and insure compliance with environmental rules and standards.

An anomaly in the current set up is that all of the accounting units are located outside the four Directorates and report directly to the General Director. While there may have been good reasons for the financial management structure to have evolved in this way, the set-up is unusual and places a great supervisory burden on the General Director. This compounds the problem imposed by a bureaucratic culture that is already highly centralized. Those accounting units that do not deal with oversight should be moved to an Accounting Department within the Directorate of Administration, freeing the General Director for other responsibilities.

3.4. NEW CHALLENGES FACING THE LITANI RIVER BASIN

In the fifty plus years since the LRA was formed, the population of the basin has expanded dramatically, as have water uses. As a result the water challenges facing the GoL today in developing and managing water resources in the basin are radically different than those of half a century ago.

These new challenges include:

- (a) Deteriorating quality of both ground and surface water;
- (b) Falling groundwater tables due to over-abstraction; and
- (c) Growing demands for surface water which threaten to outstrip the available supply.

These problems are compounded by the inadequacy of current regulatory mechanisms for water quality and groundwater withdrawals and the absence of a regular mechanism for allocating and re-allocating surface water supplies.

The LRA, because of its current water monitoring functions, its presence in the field, and its technical capacity, is the only candidate to coordinate water management in the Litani River Basin. But the LRA remains structured and staffed primarily for constructing major water resource projects. Tackling today's water challenges implies updating LRA's mandate to cover new functions, notably in terms of planning and authorizing/controlling withdrawals and releases, and correspondingly adjusting the organizational structure and staffing.

To address the new water challenges, the LRA requires new or strengthened capabilities in a number of areas:

- **Water budgeting and planning** to document current supply and demand for water in the basin and estimate expected future supply and demand conditions on a regular basis.
- **Data collection, analysis, and modeling**, in association with water budgeting and planning, to monitor current status and estimate future trends in water demand, water use, and water quality. Information collected would include precipitation, infiltration and runoff, water flows, evaporation and evapotranspiration, withdrawals for all uses and return flows. Data would cover both surface and ground water. Water quality information would include sampling results from both ground and surface water for important contaminants. An critical associated need is for

capacity to model both river flows and groundwater dynamics. A model to predict flooding events and their extent is also an important need.

- **Groundwater monitoring and permitting** to measure and analyze changes in groundwater levels, issue well permits, and monitor pumping.
- **Surface water permitting and monitoring** to control surface water abstractions by issuing permits to all significant users in the basin and monitor actual withdrawals.
- **Water quality permitting and monitoring** to monitor effluent discharges and surface and groundwater quality. This work would be coordinated with the Ministry of Environment as well as the Ministry of the Interior and Municipalities, which controls the tools of enforcement.
- **Water User Association (WUA) support**, both to develop new WUAs and to assist existing WUAs and municipalities managing small irrigation systems throughout the Bekaa Valley in managing effectively.
- **Client liaison** and awareness-raising to communicate with residents, users of water services and other stakeholders the importance of restoring and preserving the quality of water in the basin.

In the following section, a new organizational structure for the LRA is proposed that will streamline the existing structure, create capacity to carry out important new functions, and eliminate unneeded capacity for functions which are no longer as important as they once were.

4. A NEW STRUCTURE

4.1. THE 2008 LRA PROPOSAL

In 2008, the LRA developed a proposal for a revised organizational structure for the Authority, mostly based on the existing/de facto structure which had never been approved since LRA's establishment more than 50 years ago. The proposal is still pending review and approval, between the Minister of Energy and Water, the Ministry of Finances, and the Council of Ministers (CoM).

The proposal made some changes in the organizational set-up of the Authority, but did not represent a radical restructuring and left intact the existing structure based on four Directorates. It did reorganize some of the Departments within the Directorates. However the incremental changes it put forth failed to take into account the changed operating environment of the LRA and the new challenges facing it today. It also proposed, unrealistically, boosting staff numbers from their current level of around 200 to more than 700 persons. This type of expansion is clearly not feasible in today's constrained funding environment, nor does it appear to be warranted, and reflects an old-school approach of hiring a large number of field and office workers rather than using modern information technology and a high-quality staff to multiply worker effectiveness. In addition, the proposed expansion appears to assume a much larger project development workload than the LRA can realistically expect to have in coming years. Five figures depicting the overall structure proposed by the LRA in 2008 and the proposed structure of each of the four Directorates is included in Annex 1.

4.2. A REVISED PROPOSAL

Given the shortcomings in the 2008 LRA proposal, preparation of a new proposal for organizational restructuring was prepared by the LRBMS Project. The new proposal was based on a functional analysis and used the 2008 LRA proposal as a starting point. The proposed new set-up takes into account the new challenges facing the Authority as well as the need to streamline the existing structure for more efficient management. The functional analysis that underlies the new proposal was supplemented by a number of personal interviews with LRA staff. The result is a proposed new structure that is carefully adapted to the changed circumstances in which the Authority now operates, which, at the same time, builds on existing units wherever possible. The following principles were used to guide the development of the new structure.

- A unit should have between 3 and 6 sub-units if possible. Currently there are a number of Departments with only 2, or even a single, Bureau beneath them. This creates a top-heavy and expensive bureaucracy that has no justification.

- Personal with different skills and working on similar problems should be grouped as teams rather than separated by discipline, which is the case in the existing Rural Development Department. Multi-disciplinary teams are generally much more effective in addressing multi-dimensional problems than are single-discipline groups of specialists working independently.
- Units which are field oriented should be based in the field.
- New capability are needed in the following areas
 - Long-range basin planning
 - Basin-level surface water monitoring and modeling
 - Basin-level groundwater monitoring and modeling
 - Water quality monitoring, regulation and enforcement
 - Withdrawal and discharge permitting
 - Support for local water committees and water user associations
 - Two-way public communication and awareness raising

The basic structure of the LRA does not change in the proposed reorganization, and the Authority would retain its four primary Directorates, (1) Technical, (2) Administrative, (3) Hydroelectric, and (4) Irrigation. However the Departments and Bureaus within each Directorate would be adjusted to better reflect today's challenges, keeping in mind the principles outlined above. Proposed changes in the four Directorates are described below and presented afterwards in figures 3, 4, 5, and 6 (with the new units in light blue fonts).

4.2.1. TECHNICAL DIRECTORATE

A revised structure for the Technical Directorate is shown in Figure 3. The Technical Directorate would have three Departments as well as a separate Registry and Technical Archives Section. The titles of the Water Resources Department and the New Projects Department are similar to the ones in the 2008 proposal, while the old Rural Development Department is re-designated the Research and Extension Department and given a substantially new mandate and structure. The current Expropriation and Properties Department would be eliminated. Its expropriation functions would be transferred to the New Projects Department, while the properties management functions would be combined with similar functions related to machinery, materials, and furniture management in the Administrative Affairs Directorate.

Two important new units would be added to the Water Resources Department – a Basin Planning Bureau and a Permitting Bureau. The Basin Planning Bureau would be responsible for long-range estimation of total water supply and demand in the basin. It would use modeling tools to make

estimates and would consider such factors as climate change impacts on surface and groundwater supplies, population growth, growth in industrial water demand, and new project development drawing water from the Basin. It would work closely with the Hydrology and Environment Bureaus who would supply detailed information on water supply and water quality respectively. The Permitting Bureau would issue permits for ground and surface water withdrawals and wastewater discharges and monitor and enforce the terms of these permits.

A prominent weakness in current water management in the LRB is a very limited ability to enforce water quality regulations. There are many reasons for this, not least of which is the use of political influence by polluters to avoid penalties. Beyond that, however, lies a very cumbersome enforcement process, which requires the LRA to work through the General Director and the Minister of Energy and Water to contact the Minister of the Interior, who controls local police units, to request enforcement proceedings against offenders.

One possibility for improving enforcement efficiency would be to establish a specialized police force targeting polluters. Another would be to establish new procedures and shorter and more efficient enforcement linkages with the Ministry of the Interior. Enforcement is a thorny issue and solutions will likely require changes in relevant legislation or, at minimum, new agreements between the LRA and the Ministries of Environment and Interior. In the absence of a clear strategy for resolving the enforcement problem, this restructuring plan does not include provision for units dedicated to enforcement. When a clear strategy is in place, however, a unit could be added to the Water Resources Directorate for this purpose.

The **Research and Extension Department** would be a field-based Department located in two existing centers in Lebaa and Kherbet Qanifa, and a new center to be established in South Lebanon. The Department's primary responsibility would be to support farmers in coastal, South Bekaa, and South Lebanon areas, respectively, with research-based information on farming practices and irrigation technology and management. They would also take responsibility for organizing and supporting Water User Associations, if and when it was decided to establish such organizations in irrigated areas managed by the LRA. A fourth Bureau in this Department, the Feasibility Studies Bureau, would conduct agricultural feasibility studies for proposed new irrigation projects, particularly for new development proposed for South Lebanon.

These three new farmer support Bureaus would include agricultural engineers, agronomists, economists and other social scientists who would work in teams to develop improved irrigation and agricultural practices for farmers in their regions. For example, a work team might be established in Kherbet Qanifar to develop a package of improved technologies for -growing high-quality

potatoes under drip irrigation. The team would work to include both yield-improving and water-saving technologies in a set of recommended packages. These packages would be tested and demonstrated in the fields of cooperating farmers throughout the South Bekaa.

These three regional bureaus would also provide technical, organizational and management support to irrigation systems managed by municipalities and communities in the LRA region and for the establishment and support of WUAs in LRA-managed irrigation systems. These functions could be located either in the Irrigation Directorate or the Technical Directorate. The choice proposed here is to place them in the Research and Extension Bureaus in the Technical Directorate because these Bureaus will be staffed with a mixture of professional disciplines – a mix also necessary for WUA development and support tasks.

The **New Projects Department** would comprise four Bureaus whose work would combine to support new project development and implementation. In addition to the traditional Studies and Planning Bureaus, the Department would include the Expropriation Bureau⁷ which would handle acquisition of property for new projects. An Implementation Oversight Bureau would manage the implementation of new infrastructure projects by contractors. The old Tender and Bidding Department would be transferred to the Administrative Department of the Directorate of Administrative Affairs. It would rely on technical specifications provided by the Planning and Studies Bureaus of the Technical Directorate, but would operate from the Administrative Directorate, since its functions are largely administrative and procedural in nature.

4.2.2. DIRECTORATE OF ADMINISTRATIVE AFFAIRS

The Directorate of Administrative Affairs would be streamlined by reducing its current four Departments to two (Figure 4). Legal services and computer network hardware maintenance and repair services would be contracted in from the private sector to reduce costs and insure access to the latest technology and expertise. At the same time, a new Department of Accounting Services would be added to the Administrative Directorate to house accounting functions, which are currently outside the Directorate structure under the General Director. The internal structure of this Department requires further analysis.

Within the Administrative Department, the two existing Bureaus would remain, joined by the Tendering and Bidding Bureau moved from the Technical Directorate. The Properties Section would be transferred from the Technical Directorate into the Maintenance and Materials Bureau to form a third Section, all three of which would perform similar functions managing LRA assets of one kind or another.

⁷ Shifted from the old Expropriation and Properties Department, which would be eliminated.

The other Department under the Directorate of Administrative Affairs would be the Information Department, which would incorporate public relations functions and the administrative archives and registry in addition to its existing information and statistics functions. Operation of the LRA library would be added as a separate Section. Computer applications and software support would be provided by a small Computer Applications Section within the Information Bureau⁸.

4.2.3. DIRECTORATE OF HYDROELECTRICITY

The Directorate of Hydroelectricity as shown in the 2008 LRA proposal is well matched with the tasks it must carry out and no changes are recommended. The structure, as proposed by the LRA, is shown in Figure 5.

4.2.4. IRRIGATION DIRECTORATE

There are three irrigation systems currently operated by the LRA, with a fourth system in planning stages. The three existing systems are Canal 900, irrigating directly from Qaroun Lake, Laba'a Irrigation System on the western slope of Mount Lebanon, and Qasmieh Irrigation System irrigating a long narrow coastal strip north and south of the mouth of the Litani river. Irrigated areas of the three systems are roughly 630, 390, and 3090, hectares respectively.

Because Qasmieh is a very long narrow system, it has traditionally been divided between two Bureaus. This is a reasonable practice and is retained. The division of responsibilities among sections in the three Southwest Lebanon⁹ systems is also reasonable and is retained.

The structure of the South Bekaa Department has been reduced from three Bureaus to two, and has been simplified and adjusted to better reflect the division between those units which interact with and provide services directly to farmers, on the one hand, and those which carry out technical maintenance work on the other.

The Canal 800 project in South Lebanon, currently in the planning stage, will add another 15,000 hectares in scattered sub-systems between the River and the country's southern border. A structure for the South Lebanon Department should be elaborated as the Canal 800 project nears completion.

4.3. IMPLEMENTING A NEW LRA STRUCTURE

The LRA organizational structure proposed here is intended to provide a basis for discussion and negotiation. It is based on a functional analysis of what LRA does, and what it needs to do in the future to address the major challenges facing the Litani River Basin and its residents. It also relies on basic principles of organizational design to simplify and streamline the structure. Additional practical considerations related to existing units, roles, and functions will need to be brought in, and, as

⁸ This unit would be responsible only for applications support and not for hardware maintenance and support, which would be outsourced.

⁹ Renamed to distinguish it from the South Lebanon area now being developed for irrigation.

always, there are personal and political factors operating at different levels that will be considered in drawing up a final design. It is hoped, however, that all parties will keep in mind the need to build a new organization to address new challenges, rather than simply tweaking an antiquated 50-year-old structure.

The organizational redesign proposed here rests on the assumption that the mandate of the LRA, as provided in Law 14 of 1954, will be updated and expanded through an amendment to the law. The preparation of such an amendment has begun, but it will take some time before it is in place. In the meantime, creating and staffing a new Bureau for Basin Planning in the Water Resources Department should be considered. Initiating a process of comprehensive basin planning is a critical first step in management of the basin, and this could begin now, with the establishment of the new unit.

Once a new structure is in place, a next stage challenge will be to place appropriate staff in each unit of the new structure and to provide training in both the needed technical skills and in modern management practices to unit managers. This would be an area very suitable for a donor-assisted capacity development program. However prior to initiation of any such project, clear assurance by the Government that the LRA mandate would be updated and expanded and that a new organizational structure would be put in place should be in hand.

Figure 3. Proposed structure for the Technical Directorate (changes with 2008 structure are in light blue fonts)

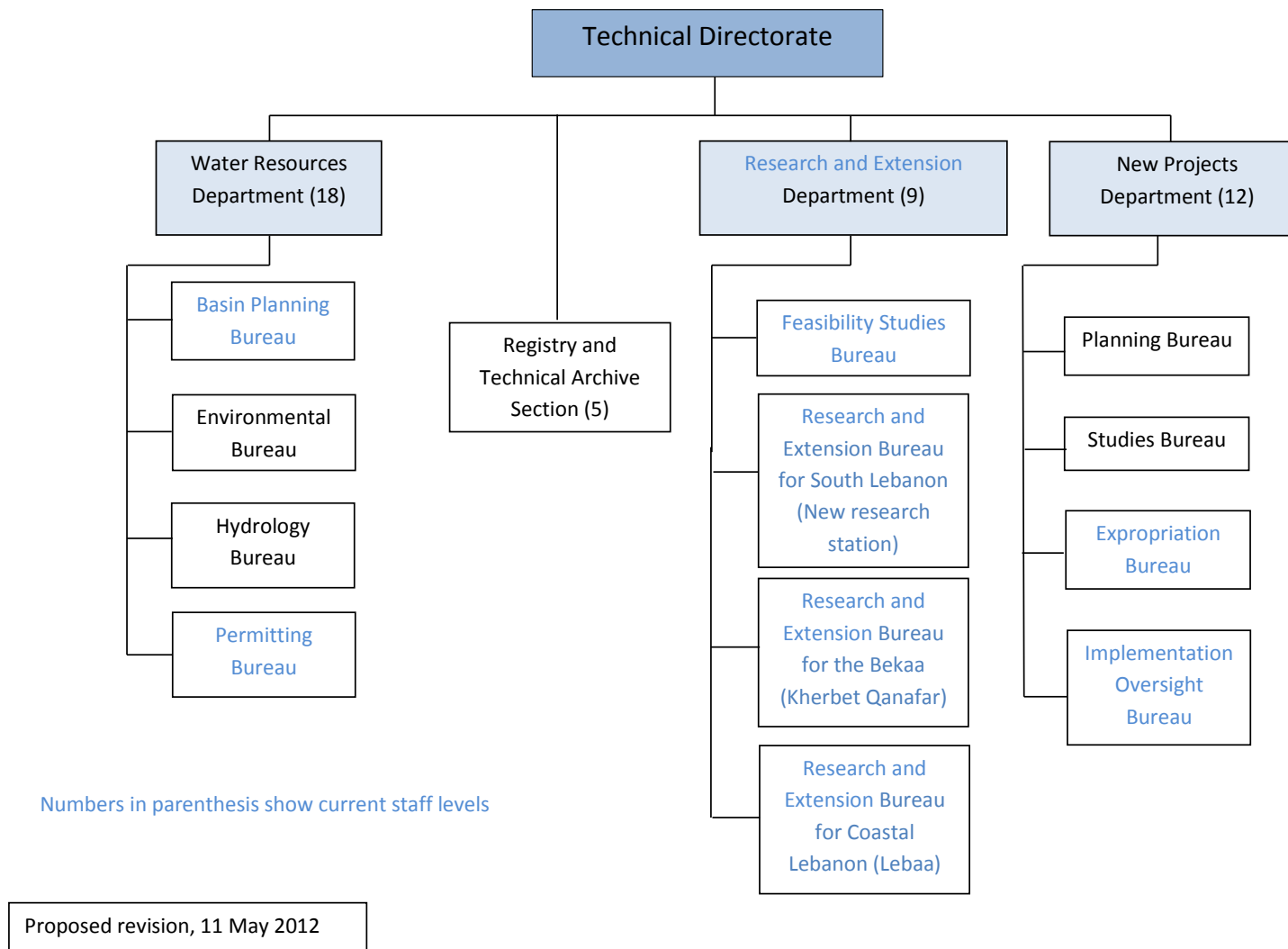


Figure 4. Proposed structure for the Directorate of Administrative Affairs (changes with 2008 structure are in light blue fonts)

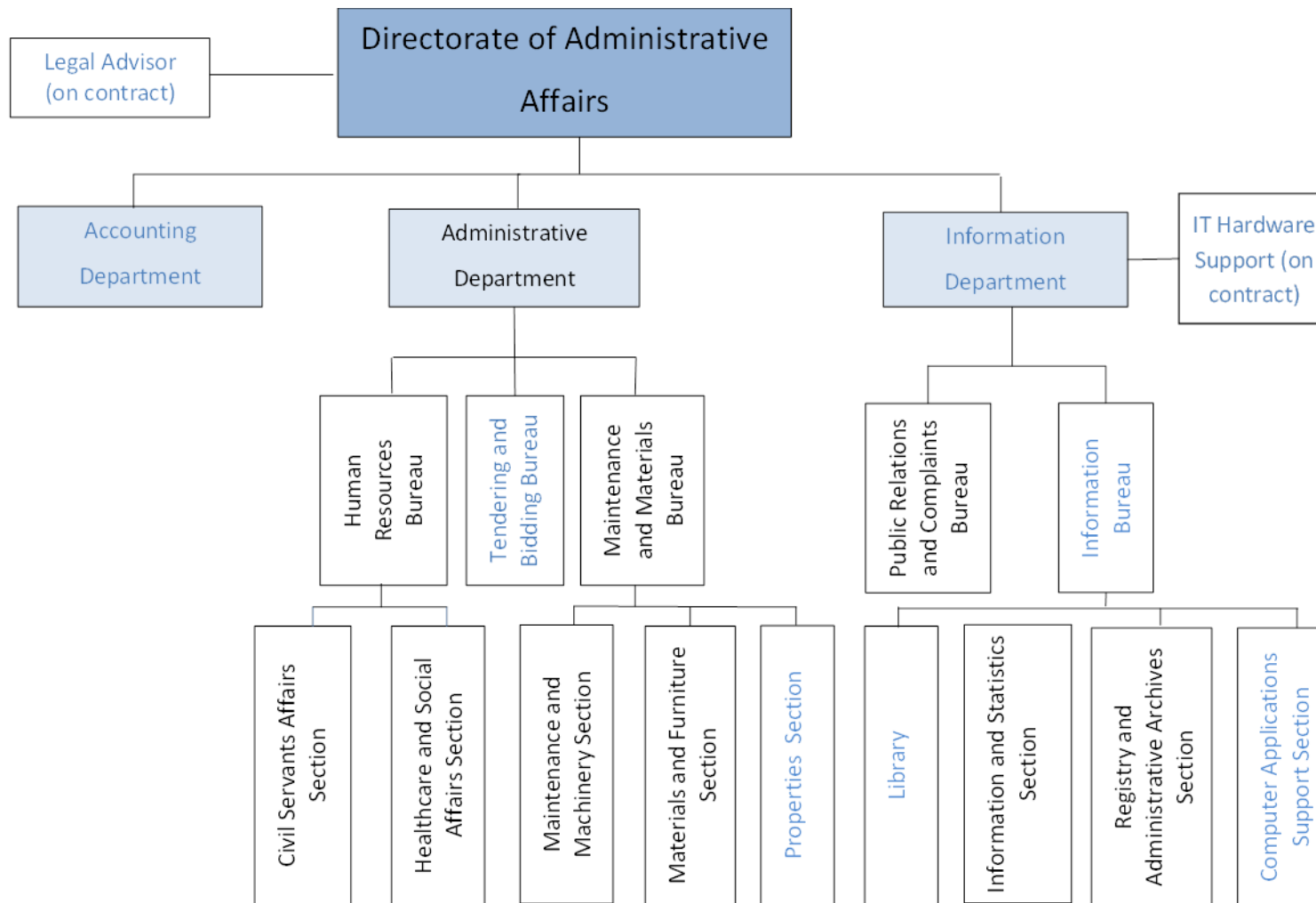


Figure 5. Proposed structure for the Directorate of Hydroelectricity (changes with 2008 structure are in light blue fonts)

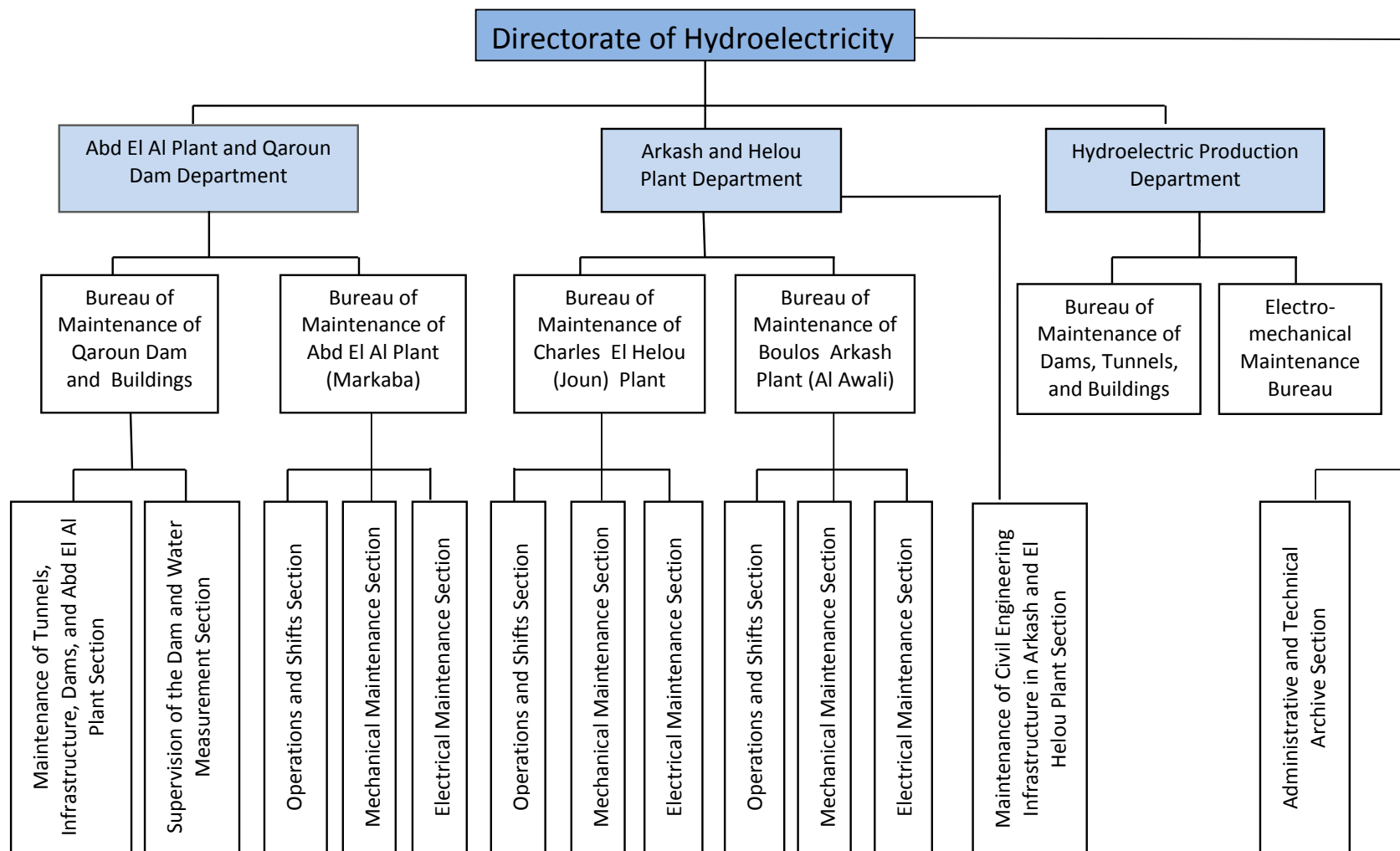
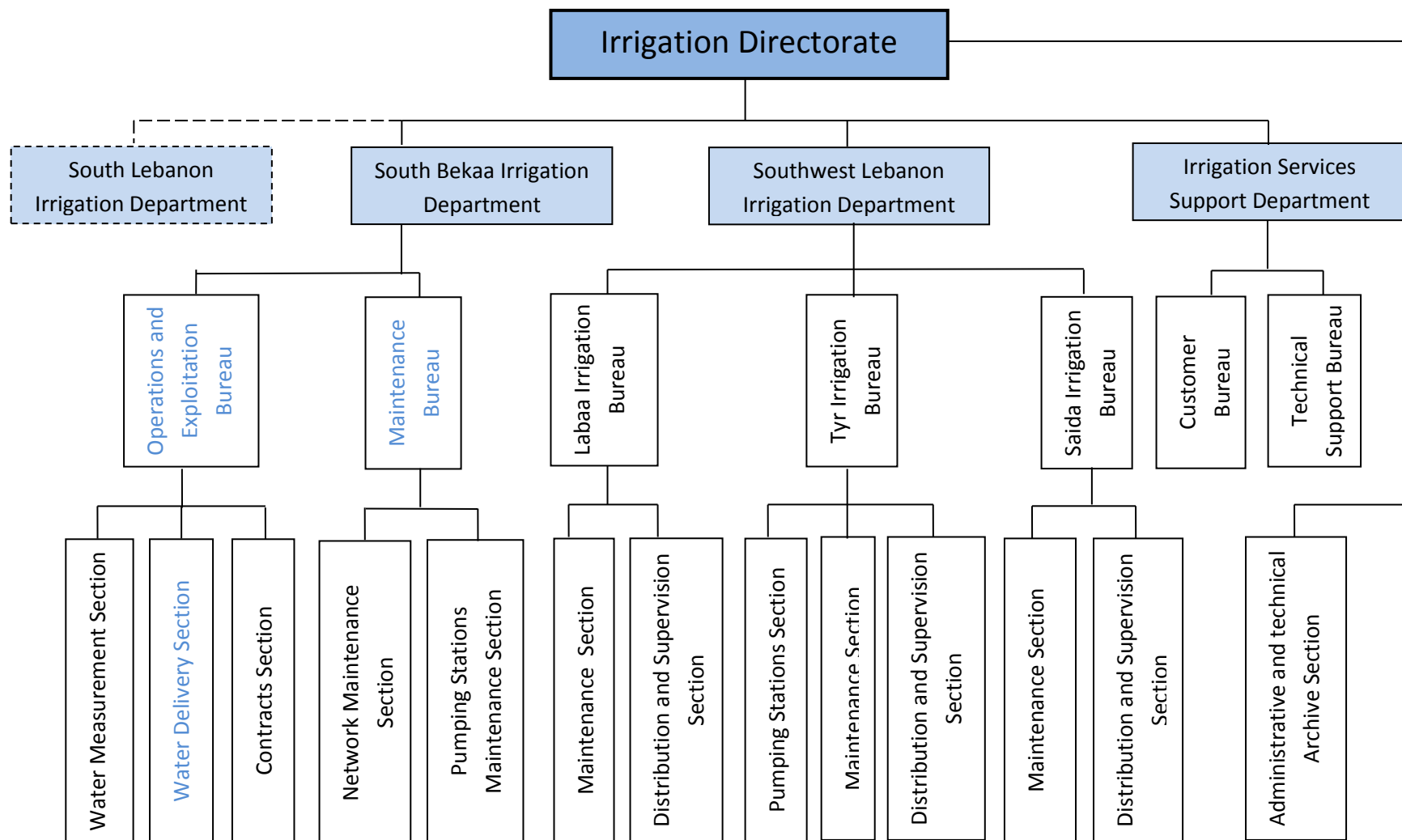
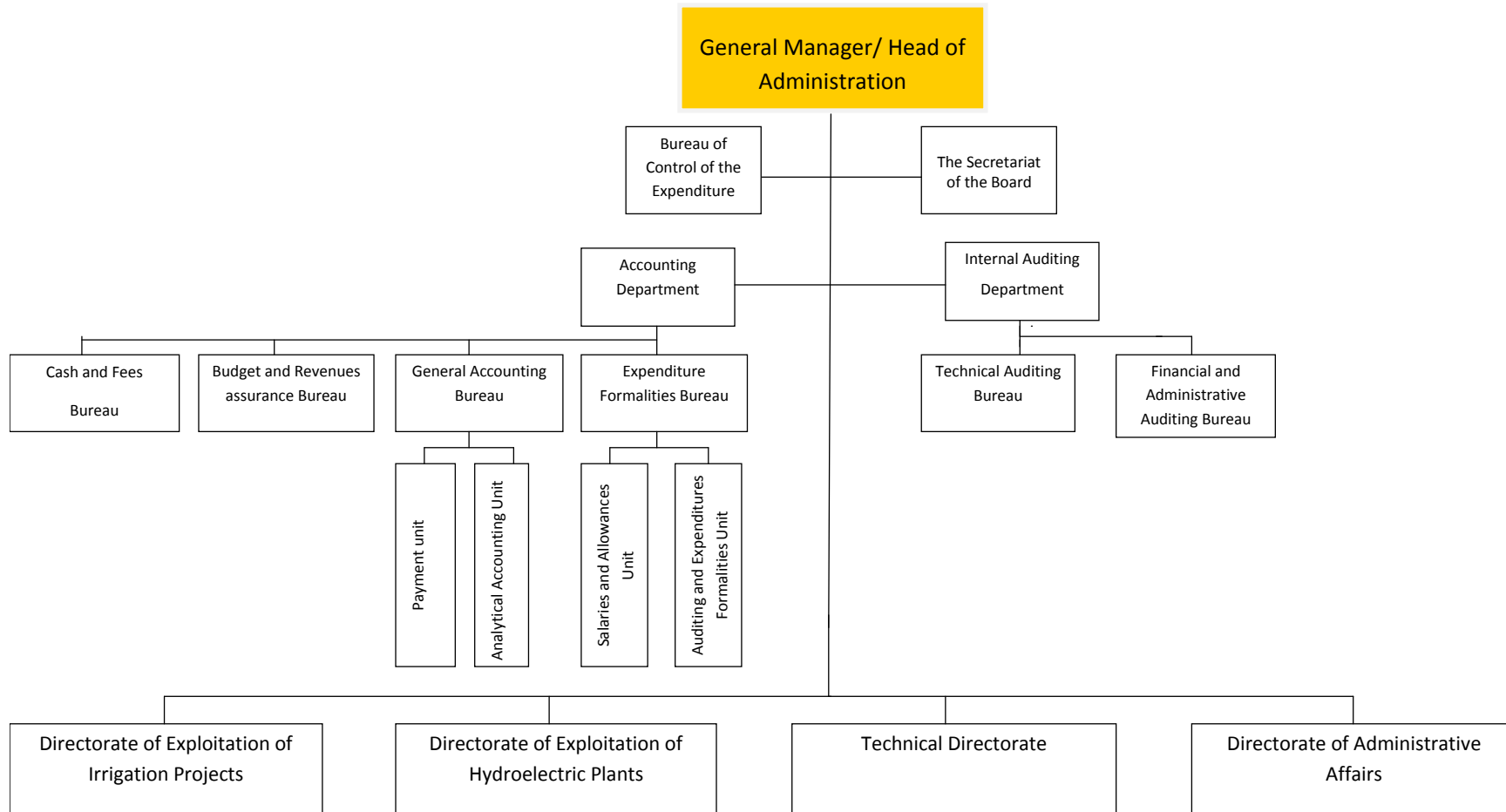
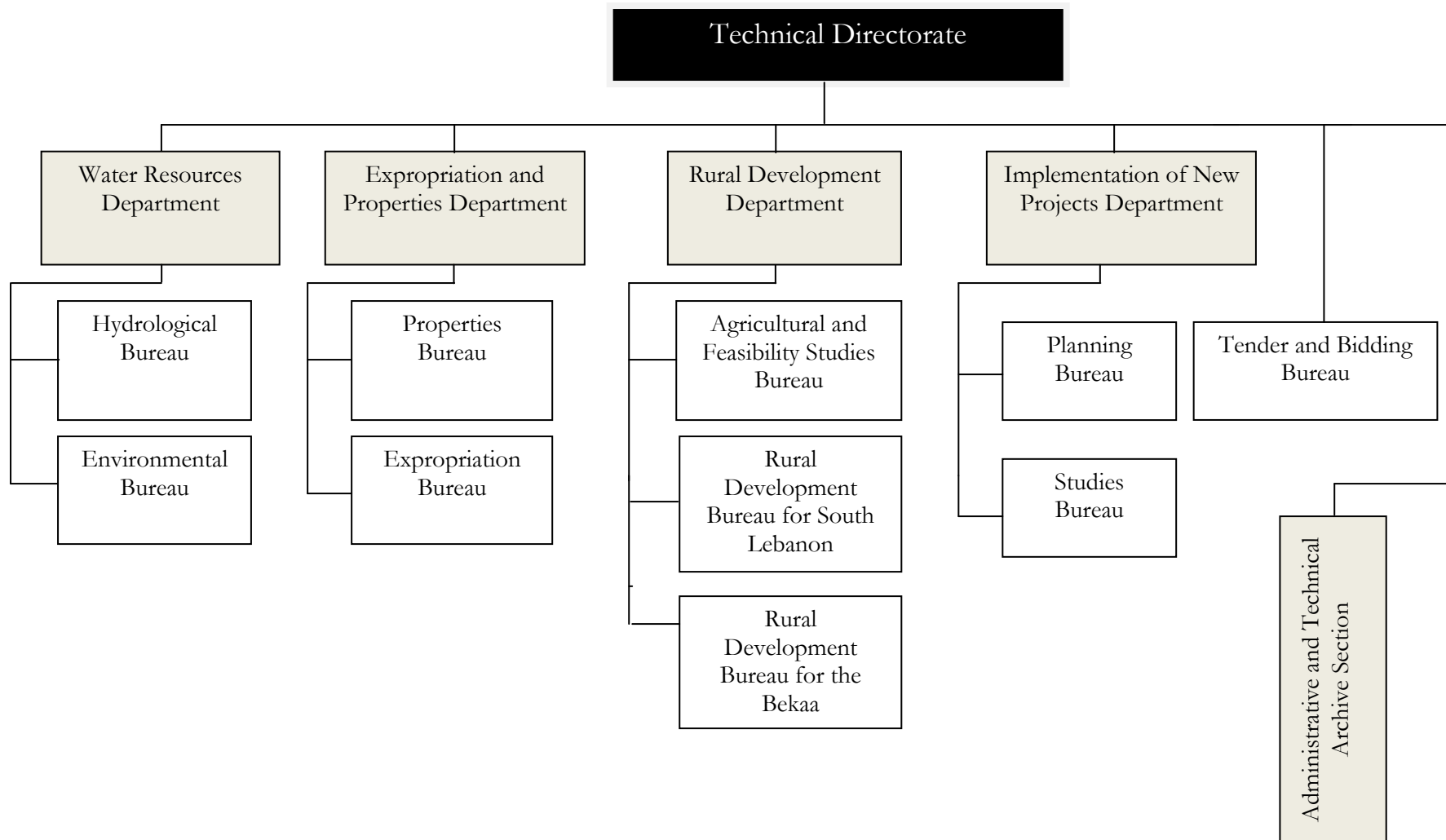


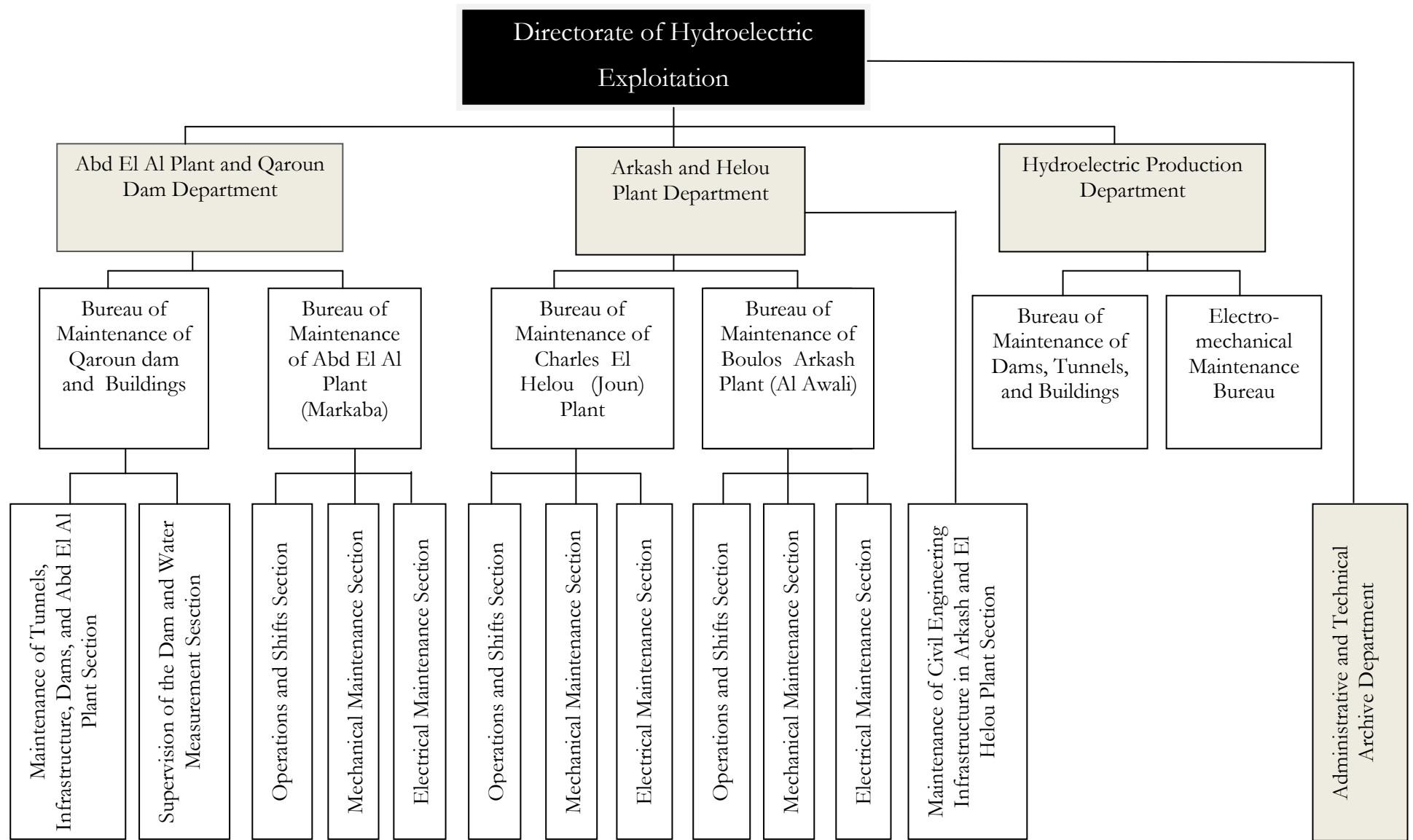
Figure 6. Proposed structure for the Directorate of Irrigation (changes with 2008 structure are in light blue fonts)



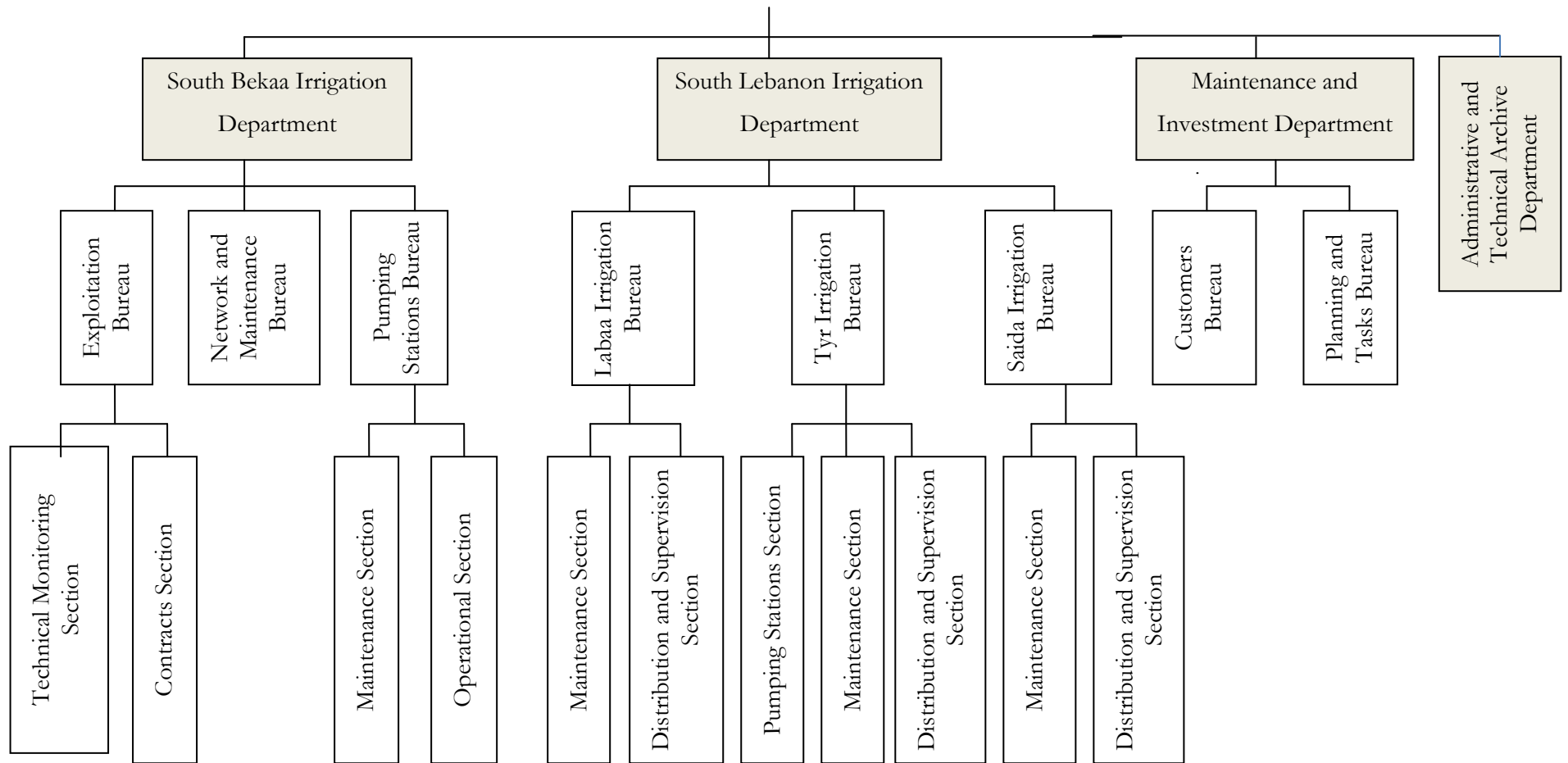
ANNEX: 2008 PROPOSED LRA STRUCTURE

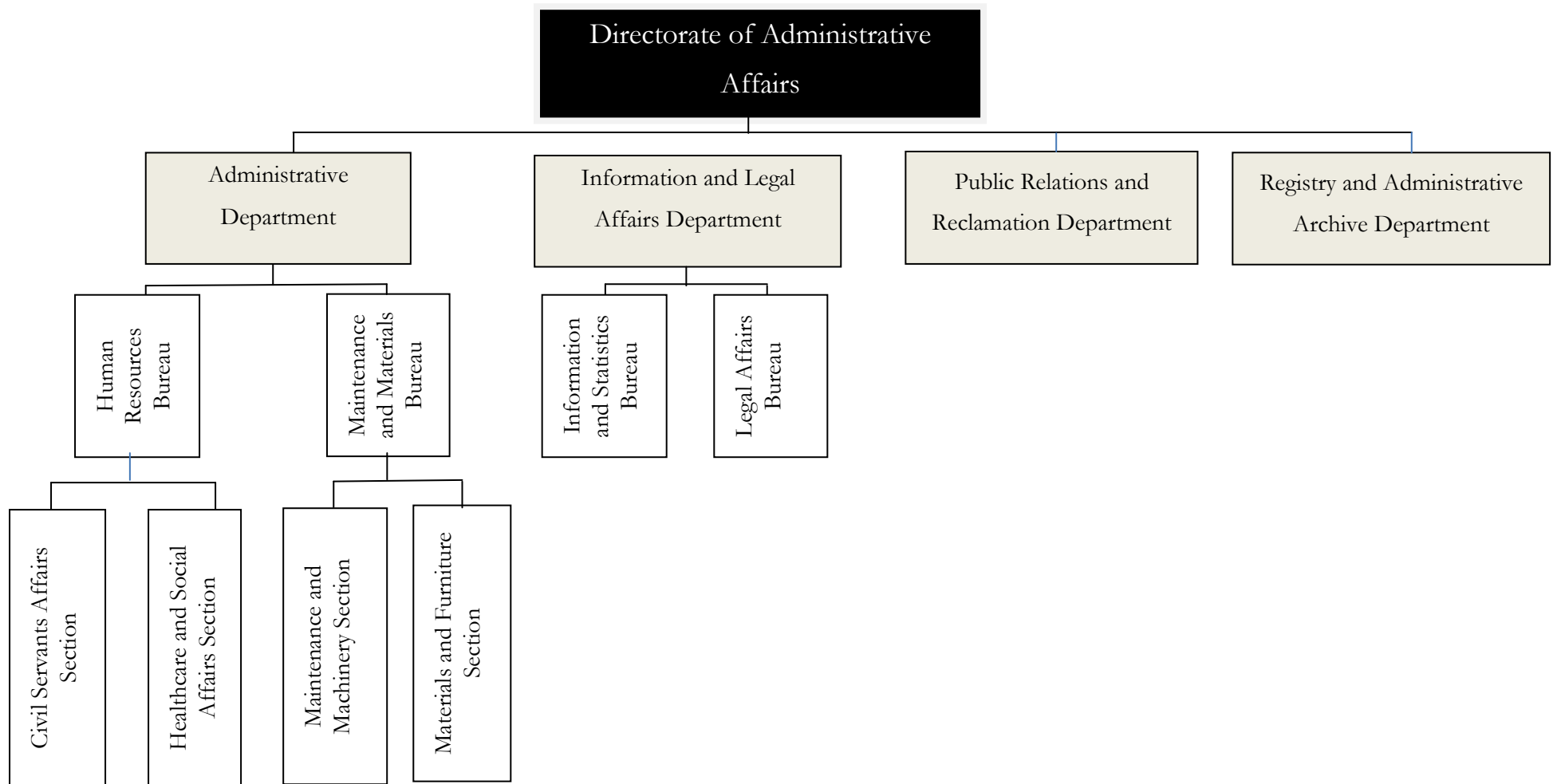






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