

# 2021

## ANNUAL REPORT



معهد البحوث الصناعية

INDUSTRIAL RESEARCH INSTITUTE  
INSTITUT DE RECHERCHE INDUSTRIELLE

	Page
<i>Forward of the Director General</i>	2
<i>IRI Its Purpose &amp; Function</i>	4
1- <i>General Public Activities</i>	5
2- <i>Laboratory services, observation and activities</i>	10
3- <i>International accreditation</i>	20
4- <i>Internal &amp; External activities</i>	26
5- <i>Applied Research &amp; Studies</i>	37
6- <i>Scientific Publications</i>	39
7- <i>Activities of the European-Lebanese Center for Industrial Modernisation – ELCIM And the Activities of the Center for Innovation &amp; Technology – CIT</i>	41
8- <i>Activities of the Lebanese Cleaner Production Center - LCPC</i>	55
9- <i>IRI cooperation with the public sector</i>	60
10- <i>IRI relations with the private sector</i>	65
11- <i>Development of human resources</i>	68
12- <i>On-going employee training</i>	70
13- <i>International and local partnerships</i>	74
14- <i>Decrees, laws and decisions</i>	77
15- <i>Communication &amp; media</i>	80

## A SUSTAINABLE STEADY DEVELOPMENT PROCESS AVOIDS THE COMPLETE SHUTDOWN OF THE INSTITUTE

by *Director General,*  
**Dr. Bassam Frenn**



In 2021, our country was still in the throes of the catastrophic events that marked the year 2020, leading to a reduction in the general economic output, and crippling the cogs of activity in all sectors. Daily life was overshadowed by a complicated political atmosphere that weighed the country down in a stifling cloud of despair, leaving people imprisoned in a suffocating, windowless, airless sphere.

The Industrial Research Institute was not immune to this dramatically tense environment and bore its consequences. However, it succeeded in overcoming formidable barriers, with its workforce maintaining its usual energy, vitality, courageous enthusiasm, patriotic feeling, and sense of responsibility. Thus, IRI employees were able to fulfill their duties towards citizens, providing them with the various public services entrusted to the Institute.

A quarter of a century ago, a line of action was devised for the Industrial Research Institute. And ever since, this spirit has been cherished and nurtured through a long and arduous path, a

purposeful and sober determination, and a vision for a promising future.

For the past 25 years, we adhered to this steady and sustainable development process, pursuing a stable and flexible strategy adapting to the challenges through participatory planning and economic dynamism to overcome difficulties and obstacles.

With a workforce that has adopted this spirit, the Institute succeeded in overcoming great difficulties, and persevered in its role, avoiding the decline that befell most institutions. It was able to maintain the same level of services, and followed through with the files it was handling, a feat that only a handful of state institutions were able to achieve.

With a strong will, steadfast determination and superior know-how, the administration of the institute was able to prevent its complete shutdown, in spite of the frightening stagnation of the economic cycle. Staff continued to work daily and sometimes on weekends. Laboratories

never stopped, and all directorates maintained full readiness.

While the Covid-19 pandemic imposed participation in external activities through virtual communication technologies and video conferencing in line with the globally implemented preventive measures, the management of the Industrial Research Institute and its technical staff physically participated in many activities at the level of the Government Serail, the ministries of Industry, Environment, Economy and trade, National Defense and Public Health, as well as with the Lebanese Army, many public administrations and institutions, the Lebanese University, the private industrial sector and the business world in Lebanon.

In the conference hall at the Institute, a media-industrial cooperation was held between the Ministries of Industry and Information to promote the Lebanese productive sector.

The Euro-Lebanese Center for Industrial Modernization also pursued its operational obligations with industrialists and the industrial sector, especially by means of video-conferencing, maintaining its status as the bridge between academia and entrepreneurship, and supporting

four teams that underwent training programs.

The Center for Innovation and Technology also continued to evaluate projects, while the Lebanese Cleaner Production Center continued its various activities as usual.

True, the decline in the foreign trade movement was reflected in the statistics of customs files and laboratories. However, in general, the level of activity at the Industrial Research Institute remained higher than in all other economic sectors.

The success of the Institute in its long and honorable journey increases my confidence that my vision of its role - since I assumed the mission - was correct. We have strived to uphold that vision year after year, with proper evaluation and careful planning. I adopted the latest concepts, developments and equipment, in order to confirm the Institute's pioneering role, in the scientific and economic sectors, at the regional and European levels. My confidence increases year after year in this success, which motivates us all to continue translating our aspirations into scientific facts and economic results that support the national economy and strengthen our institutions.

## IRI: ITS PURPOSE & FUNCTION

The Industrial Research Institute is a Lebanese institution for studies, industrial research, and scientific testing and analysis. IRI is a non-profit, non-commercial, public utility organization having an independent legal personality with the right to own, purchase, sell, insure, accept donations, take loans, and engage in litigation and similar activities. IRI was founded in 1953 and was linked to the Ministry of Industry pursuant to Article 3 of Law n° 642 of June 2, 1997. IRI is governed by private law, and its bylaws and internal and financial regulations.

IRI enjoys financial and administrative independence and is subject to post-auditing by the Court of Accounts in what concerns the contributions of the government to IRI.

IRI's headquarters are located in Hadat, and it is entitled to establish branches in all parts of the Lebanese Republic and abroad.

IRI is an independent national research center, and combines:

- Knowledge, expertise, and specialization
- Scientific material and equipment
- Data and technical documents.

IRI offers specialist scientifically reliable services to the national economy as well as existing industry and those which can be established with the aim of industrial development. The services include:

- Consultations
- Studies and research
- Testing, metrology, and analysis.

IRI, through its activities and operations, seeks to achieve the following goals:

- Conducting research and studies to enable the establishment of new industries
- Conducting research and studies on various materials and items to learn their properties and determine their uses and applications
- Offering specialist consultations on technological, administrative, and economic matters related to existing industry with the aim of industrial development and encouraging the creation of new industries
- Offering internationally accredited services in testing, analysis, and metrology related to materials and items, and issuing certificates of quality and conformity certificates
- Collaborating with national and international official bodies, and economic institutions and trade unions with the goal of fostering economic development.

IRI brings together a reliable body of experts, specialists, and engineers in many fields to carry out its activities, supported by another body of administrators, accountants, and clerks who undertake administrative tasks and other internal services.

## OUR ETHICAL STANDARDS

In carrying out its functions, the Institute adheres to ethical and professional standards whereby it safeguards the clients' best interests. Furthermore, IRI regards as the client's property any information, processes, patent or techniques developed during work with the client and safeguards such matters in complete secrecy.



# GENERAL PUBLIC ACTIVITIES

## VISIT OF THE MINISTER OF INDUSTRY TO THE INDUSTRIAL RESEARCH INSTITUTE

*Bouchikian: “A national and scientific monument and a reference center for the advancement of the Economy and Development”*

*Frenn: “A developmental journey and a sustainable strategy in the face of challenges”*

**Wednesday 29/9/2021**

The Minister of Industry, Mr George Bouchikian, has accepted the invitation of the Director General of the Industrial Research Institute to visit and tour



the Industrial Research Institute accompanied by the Director General of the Ministry, Mr Dany Gedeon, the Director General of the Lebanese Standardization Agency LIBNOR, Ms Lena Dargham, and the directors, division heads, and managerial staff of the Institute. The delegation toured the laboratories and listened to detailed explanations about their instrumentation and analytical methods.

Prior to the tour a meeting was held in the conference room during which a documentary about the history of the Institute was shown.

Dr Frenn welcomed the Minister who is a friend and supporter of the Institute and who has great knowledge of its role and operations. He wished him success in his Ministerial duties, placing the Institute at his disposal in order to promote the growth of the Lebanese economy and modernize

Lebanese industry. Minister Bouchikian expressed his pride and the pride of the Lebanese people in the Industrial Research Institute, announcing that he will invite Lebanese missions, organizations, and delegations to hold meetings in the Institute, which he considers a reference and a pillar of the national economy

### **Dr Frenn**

After the welcome, Dr Frenn added: “2020 was a disastrous year for both the world and Lebanon. With trepidation, the Lebanese were left contemplating a doomed fate as both their immediate and long-term future prospects seemed increasingly uncertain. The economic outlook was bleak with the complete collapse of the value of the national currency, the public health situation was catastrophic with a frightening spread of the Covid-19 epidemic, and tragic death tolls, not to mention the cataclysmic social and educational situation, and the near collapse of the system of government in the country leading to fears of a meltdown in the security situation that had been, up to that point, well maintained.

The Industrial Research Institute was no stranger to the dramatic context of the last year. Yet, despite the exceptional circumstances, the management and staff of the Institute were able to maintain their usual energy, vitality, bold enthusiasm, patriotic feeling, and sense of responsibility, thus managing to fully perform their duties and offer their public service to citizens.

This is the spirit of the Industrial Research



Institute, forged over the past 25 years, with a purposeful and sober determination, trudging along an arduous path, while maintaining a promising vision for the future.

A quarter of a century of continuous and sustainable development, following a consistent yet flexible strategy that responds to challenges and overcomes difficulties and obstacles through planning and participatory economic dynamism. As mentioned above, the great difficulties did not limit the capabilities of the Institute, nor did they diminish its offerings, be it in the form of consulting, research, and laboratory services. It plowed on in its role as before, avoiding the decline recorded by most institutions, and maintaining the same level of services and number of files that it treated in the past, in a precedent known only to a select number of institutions that were able to pursue their work.

With a strong will, steadfast determination and superior know-how, the management of the Industrial Research Institute was able to prevent it from being completely shut down in the face of the frightening stagnation of the economic cycle. The staff continued to work daily and sometimes on weekends. The labs never stopped. And all directorates maintained full readiness.

And if, because of the Corona pandemic, participation in external activities was forced to be through virtual communication and video conferencing technologies as required by the preventive measures implemented globally, the management of the Industrial Research

Institute and its professional staff physically participated in many activities at the level of the Governmental Serail, and the ministries of Industry, the Environment, Economy and Trade, National Defense and Public Health, as well as the Lebanese Army, many public administrations and institutions, the Lebanese University, the private industrial sector and the business world in Lebanon.

The Institute opened its lecture hall for the Ministries of Industry and Information to hold seminars related to media-industrial cooperation in terms of promoting the productive economic sector.

The Euro-Lebanese Center for Industrial Modernization (ELCIM) also did not renege in its operational obligations with industrialists and the industrial sector, especially by means of electronic connectivity, maintaining the bridge linking academia and entrepreneurship, and supporting four teams that underwent training programs.

The Center for Innovation and Technology also continued to evaluate five projects, while the Lebanese Cleaner Production Center continued its various activities as usual.

True the decline in the foreign trade movement was reflected in the statistics of customs files and laboratories. However, in general, the level of activity at the Industrial Research Institute remained higher compared to all economic sectors...

Unlike previous years, and due to well-known





industry and all other business and productive sectors. I command you for being able to overcome the Covid-19 crisis and the paralysis that afflicted the business world in Lebanon and its institutions last year. Due to your wise policies, you were able to maintain the normal activity of the Institute in service to the economy and society. This by itself is a feat in the midst of difficult and complicated circumstances.

My wish to you is to keep up your activity as required by the laws and mandated by your conscience. We

conditions, it was decided this year to present the annual report for the year 2020 on the Institute's website."

**Minister Bouchikian**

Minister Bouchikian gave a speech in which he said: "I am happy to visit the Industrial Research Institute and tour its laboratories, departments and research centers. I am honored to be standing in this advanced national, scientific, economic and industrial monument that I consider a pillar and a reference to institutions and a promoter of their success and development. I say this with full confidence based on my personal work with the Industrial Research Institute for years. The sure development of the Institute over the years is visible in many fields. Its activities have expanded and its laboratories are capable of covering a wide range of analyses and laboratory services.

Its research centers offer research and consultancy services to industrialists with the aim of modernizing promising industrial sectors, financially, managerially, organizationally and to promote cost reductions in the fields of water use and energy consumption rationalization.

The Institute owes its survival, its development and its pioneering position in serving the national economy and contributing to its development to its management and the planning and forward thinking of Dr. Frenn, as well as to the dedication of all its employees to supporting the national

are in the service of the citizen, the industrialist and all business owners. The Industrial Research Institute has become an incubator that is supporting all business sectors in Lebanon. This requires that we all sacrifice for the sake of Lebanon. The opportunity is at hand. Our country has seen more difficult circumstances in its ancient and modern history. The Lebanese people are a unique people. They are attached to their land, traditions and culture. We are determined to build together the Lebanon of the future. Trust is key to restoring the oneness between the state and state institutions and the citizens. The Salvation Government that has been formed will work on regaining trust through actions, good practices, dedications, seriousness, and transparency.

There is no more room to mix public and private interests. When I accepted ministerial functions, I resigned from my private business to avoid benefiting from public opportunities for private gain. This is what is stipulated by law, and mandated by duty and conscience. We are called upon to apply the laws and regulations, no more, no less. This will pave the way to rebuild trust brick by brick. We face great challenges that we will cooperate to overcome. And we will spare no effort in achieving the goal of rebuilding the State on modern principles that befit the dignity, aspirations and ambitions of the Lebanese people."

## DRUG-FREE INDUSTRIES WORKSHOP

Among the activities of the Industrial Research Institute, Jeunesse Anti Drogue (JAD) organized a workshop entitled “Drug-free Industries” under the auspices of the Ministry of Industry, the Ministry of Displaced People, and the Association of Lebanese Industrialists, that was attended by the minister of Industry and the minister of Displaced People in the care-

taker government, Messrs. Imad Hobballah and Dr. Ghada Shraim, the Director General of the Ministry of Industry Dany Gedeon, the Deputy Head of the Association of Industrialists George Nossrawi, the head of JAD, Joseph Hawwat, and other interested parties at the auditorium of the Industrial Research Institute in the Lebanese University Campus – Hadat.





**LABORATORY SERVICES,  
OBSERVATIONS &  
ACTIVITIES**

## THE INDUSTRIAL RESEARCH INSTITUTE OVERCOMES TURBULENT SITUATIONS AND MAINTAINS A NORMAL WORK SCHEDULE

### *212120 test operations and 25040 conformity files*

The abnormal and turbulent situation on many days of the year led to irregular activity in public administrations in the country, which was reflected in a partial paralysis at the level of the national economy, within the context of the ongoing Covid-19 pandemic on the one hand, and the rise in fuel prices in relation to the purchasing power of citizens, due of the declining value of wages caused by the collapse in the value of the national currency relative to the US dollar.

However, the management of the Industrial Research Institute was able to maintain regular work schedules in all departments of the Institute, in order to meet the demands of the private and public sectors. Thus, the Institute continued its activity, despite the obstacles arising from the general environment.

Once again, the management of the Industrial Research Institute confirmed its adherence to the goals of the Institute, which were set in 1998, the year Dr. Bassam Frenn took office. With the aim of elevating the Institute to the level of a scientific bulwark, Dr Frenn was successful not only in steering it away from the, at times, chaotic course of its surroundings affected by wars and economic turmoil that shattered development and progress, but also from the internal political tensions, the decline in economic activity, and the turmoil in the price of the national currency in the foreign exchange market. He thus confirmed the extent of his commitment to work ethics and operational success, providing all sectors of the national economy, with scientific data that strengthens them at the levels of internal and external markets.

The Institute has proven to be the leading scientific

institution in Lebanon and the East, capable of putting its scientific capabilities, laboratories and the capacity of its human workforce, not only in the service of the industrial sector, but also in the service of the public sector, saving money and achieving scientific support –with fast results – in the campaign to monitor and inspect industrial, agricultural and health products, meeting the requests of the Ministries of Economy and Trade, Industry, Health and even Lebanese Agriculture, in addition to testing imported oil derivatives for the public sector, and monitoring new liquified gas cylinders.

In this general climate, the activity of the Institute increased in 2021, achieving a 33 percent increase compared to 2020, the most catastrophic year on the economic level.

The tests, inspections and audits were distributed, in total, as follows:

- 212120 tests and analysis operations in the field of conformity, conducted by the laboratories of the Industrial Research Institute during the year 2021, with an increase of 24,360 operations compared to 2020, a rate of about 13 percent.

In addition to these tests, there were 279 external inspections, in addition to inspections on 85,267 gas cylinders performed internally.

- The standardization and calibration tests amounted to 18,459 tests on 1,975 samples.
- In the field of conformity assessment to mandatory norms of merchandise entering through Lebanese border points,

The Industrial Research Institute handled 25,040 files.

The Industrial Research Institute consolidates its capacity as a scientific institution that can accommodate the needs of the public

administration and the private sector, and watch over them in order to complete scientific and technical tests in many fields, accurately and skillfully, in addition to preparing research and scientific studies in all economic fields.

### Tests and analyzes

The insistence of the Director of the Industrial Research Institute and its workforce – in the various departments – on maintaining daily work hours, led to a difference and an increase of 12.5 percent in the level of activity of the Institute’s various laboratories, compared to what it was in 2020. The activity in the Electricity Laboratory increased by 101 percent, and the tests conducted there represented 26.5 percent of the total tests. Although the activity in the Chemical Laboratories decreased by about 6 percent, their share of the total tests amounted to about 33 percent, followed by Civil Engineering and Soil

laboratories, with a share of about 16.6 percent of the tests, and Microbiological tests represented 13 percent, followed by Chemical Laboratories representing 5 percent. The Petroleum and Paint Laboratory (4 percent), the textile and leather laboratories... and the Central Laboratory for Cereal, Flour and Bread Research...

Tests were conducted on 35,187 samples of various types received.

The welding lab conducted 1,315 tests on a single project.

### NUMBER OF TESTS BY LABORATORY

Year	2021	2020	2019	2018	2017	2016
Chemical and physico-chemical	69,840	74,270	81,500	80,600	67,870	71,400
Microbiological analyses	27,750	29,250	33,500	39,300	35,700	37,620
Textile, leather and rubber	2,850	3,430	5,900	6,750	7,100	6,830
Paint, Petroleum and derivatives	8,640	9,540	16,500	16,150	15,200	13,200
Civil Engineering	35,345	29,325	60,010	80,821	86,868	93,073
Electricity	56,500	28,092	118,484	122,841	124,633	119,595
Central Laboratory for grains, flour and bread research	11,194	13,853	13,879	21,678	14,742	9,973
Welding	1,315	1,893	2,303	4,852	1,194	3,281
<b>Total</b>	<b>213,434</b>	<b>189,653</b>	<b>332,076</b>	<b>372,992</b>	<b>353,307</b>	<b>354,972</b>

The activity of laboratories according to statistical tables was as follows:

**Chemistry and Physiochemical Laboratories**

The number of tests in the Wet Chemistry and Physical Chemistry laboratories reached 69,840 tests, down by 4,430 samples, or 5.9 percent, and represented about 33 percent of the overall laboratory activity.

**Microbiology**

The number of microbiological tests decreased by 1,500 tests, a rate of 5.2 percent and amounted to 27,750 tests, representing about 13 percent of the total tests...

**Textile, leather, and rubber laboratories**

Testing and analysis in these laboratories, recorded 2,850 tests, representing about 1.3 percent, a decrease of approximately 17 percent, as the import of textiles and fabrics has largely stopped.

**Petroleum and Petroleum derivatives**

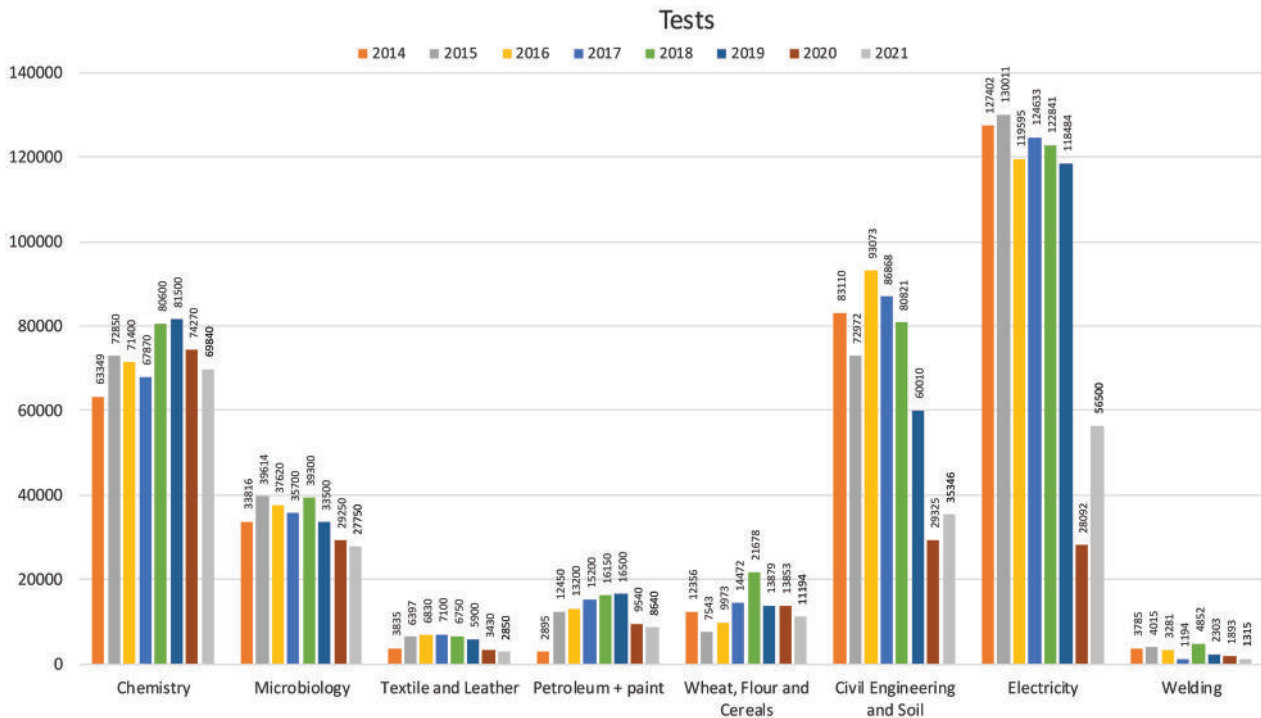
The activity of the Paint and Petroleum laboratories decreased by 900 tests, or 9.4 percent, and amounted to 8,640 tests, and their share of the total tests reached 4 percent.

**Civil Engineering laboratory**

The activity of the Civil Engineering and Soil laboratories, increased by 20.5 percent and recorded 35,346 tests, compared to 29,325 tests in 2021, with a share of 20.5 percent of the testing activity.

**Electricity laboratories**

The activity in the Electricity laboratories has doubled, reaching 56,500 tests, an increase of 28,408 tests, and their share is about 26.5 percent, compared to 36 percent.



### Central Laboratory for Research in Cereals, Flour and Bread

Due to the close cooperation between the Ministry of Economy and Trade and the Industrial Research Institute, the laboratory serves the Ministry of Economy and Trade in terms of its responsibility for carrying out laboratory tests for imported wheat. It also conducts all other testing for the majority of imported and locally manufactured products. The number of tests in the Central Laboratory for Cereals, Flour and Bread Research reached 11,194 tests, down 2,659 tests by 19.2 percent.

### Welding laboratories

As for welding operations, they reached 1,315, down by 578 operations representing 30.5 percent.

### Metrology and Calibration Laboratories

The activity of the various metrology laboratories increased during the year 2021, by 17.4 percent compared to 2020, and amounted to 18,459 tests, compared to 15,724 tests, in the previous year.

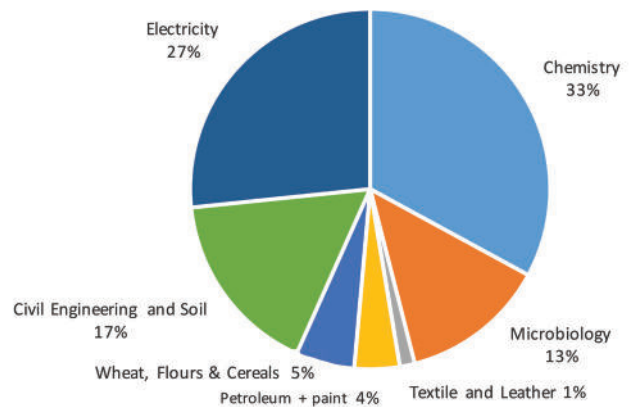
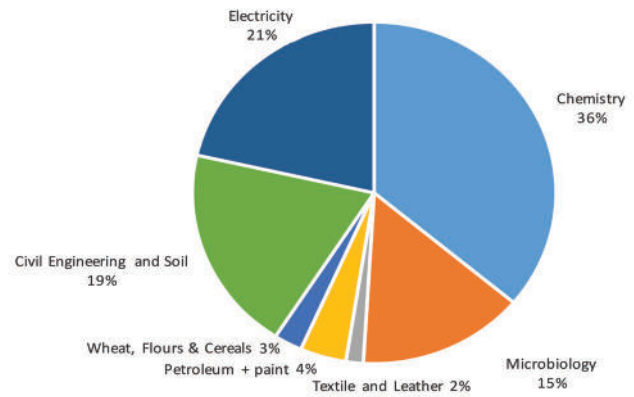
These laboratories received 1,975 measuring devices...

These tests were distributed in the fields of temperature, pressure, force, mass, dimension and electricity.

The development of the activity of these laboratories is as follows:

#### Temperature

The temperature laboratories received 437 devices, 4,356 tests were conducted on them, with a decrease of 3 tests representing 0.68 percent, and an average of 10 tests for each device, which is the same rate since 2010.



#### Pressure

25 pressure measuring devices were delivered for testing. These underwent 200 tests at the rate of 8 tests per device, which is the same usual rate.

#### Force

The force measurement laboratories received 2 (two devices) in order to measure their force. 16 tests were conducted, with an average of 8 tests per the device.

#### Mass

The number of mass units was 11,883, on which 1,269 tests were conducted, with an average of 9.4 tests per unit.

#### Dimensions

The number of units increased to 186 units and tests to 1,488, with an average of 8 tests per unit.

**Electricity**

As for the tests on equipment in the field of electricity, they decreased in 2021 to 39 devices and 136 tests, an average of 8 tests per device.

**Miscellaneous tests**

The number of miscellaneous tests amounted to 136 tests, on 17 devices.

**MEASUREMENT AND CALIBRATION**

TOTAL ACTIVITY	2021		2020		2019		2018		2017	
	Tests	Units	Tests	Units	Tests	Units	Tests	Units	Tests	Units
Temperature	437	4,356	440	4,400	533	5,330	551	5,510	515	5,150
Pressure	25	200	29	232	18	144	70	560	96	768
Force	2	16	5	60	9	108	6	72	10	95
Mass	1,269	11,883	996	9,288	1,228	11,532	1,170	10,816	1,298	11,844
Dimensions	186	1,488	143	1,144	187	1,496	113	904	163	1,304
Electricity	39	380	51	408	38	304	52	416	29	232
Other tests	17	136	24	192	38	304	36	288	37	296
<b>Total</b>	<b>1,975</b>	<b>18,459</b>	<b>1,688</b>	<b>15,724</b>	<b>2,051</b>	<b>19,218</b>	<b>1,998</b>	<b>18,766</b>	<b>2,148</b>	<b>19,689</b>

**EXTERNAL INSPECTION**

ACTIVITY	YEAR	2021	2020	2019	2018	2017	2016
Gas storage tanks inspection		120	126	79	109	155	162
Fuel tanks inspection and calibration		38	45	39	41	50	93
Steam boiler inspection		121	137	161	188	99	81
Various pressure devices inspection							
<b>Total</b>		<b>279</b>	<b>308</b>	<b>279</b>	<b>338</b>	<b>304</b>	<b>336</b>
Local gas cylinders inspection and control		85,267	424,168	672,262	677,600	649,776	615,000
Imported gas cylinders inspection and control		0	0	0	14,784	5,000	0



## CONFORMITY ASSESSMENT ACTIVITIES INCREASED TO 25,040 FILES

### *Movement through points of entry improves 33 percent*

Conformity assessment activities are related to the volume and financial values of Lebanese imports. They improved in 2021 relative to the previous year, and increased by about US\$3 billion, or 30%.

The volume of these imports amounted to 12 million tons of various types of goods, valued at 20.5 billion Lebanese pounds, at a US\$ rate of 1,507.5 Lebanese pounds to the dollar, equivalent to 13.6 billion dollars, compared to US\$ 10 billion in 2020 and around 22 billion in 2018 and 19 billion in 2019.

This increase was reflected in improved numbers of customs files subject to conformity assessment by the Industrial Research Institute, attaining 25,040 files compared to 18,829 files in 2020, an

increase of 6,211 files, or 33 percent.

The assessment activity is distributed according to the types of imported goods as follows:

- Customs files for which conformity assessment was performed in the country of origin within the Institute's mechanism, 406 files.
- The number of files subject to conformity inspection reached 18,000 files, and the files not subject to the decreed mandatory specifications after the study, was 7,040 files
- The number of non-conforming files was 539, of which 456 were corrected, and 83 were rejected.

### CUSTOMS FILES 2021

Files type	Pre-Shipment	Chemical	Electrical	Medical	Elevators	Mechanical	Energy	Paint	Pressure Equipment	Civil Engineering	Textile	Transport Vehicles	Common files	Grand Total
Number	406	4,281	6,563	3,505	89	547	227	1,671	88	1,829	1,863	1,065	2,906	<b>25,040</b>
Subject files	406	2,968	4,075	3,098	38	271	139	449	34	1,813	1,530	900	2,279	<b>18,000</b>
Non-subject files	0	1,313	2,488	407	51	276	88	1,222	54	16	333	165	627	<b>7,040</b>
Percentage of non-subject files	0	30.67	37.91	11.61	57.3	50.46	38.77	73.13	61.36	0.87	17.87	15.49	21.58	<b>28.12</b>
Non-confirming files	0	69	343	2	0	0	8	10	3	88	15	0	1	<b>539</b>
Percentage of non-confirming files	0	2.32	8.41	0.06	0	0	5.76	2.23	8.82	4.85	0.98	0	0.04	<b>2.99</b>
Corrected Files	0	5	332	2	0	0	8	4	3	88	14	0	0	<b>458</b>
Rejected Files	0	64	31	0	0	0	0	0	0	0	0	0	0	<b>83</b>

The distribution of files according to the type of imported goods, by importance was as follows:

### **Chemicals**

4,281 files, compared to 3,906 files in 2020, an increase of 375 files, or 9.6 percent. These files constitute about 17 percent of the total.

### **Electrical appliances**

representing 26.2 percent of the total customs files, with 6,563 files, an increase of 2,696 files and a rate of close to 70 percent.

### **Medical appliances**

Constitute about 14 percent of the total files, amounting to 3,505 files, compared to 3,592 files in 2020, a decrease of 87 files or 2.4 percent.

### **Construction materials files**

Increased from 1,165 to 1,829 files, an increase of 664 files, representing about 57 percent. The share of these files from the total is 7 percent.

### **Textile files**

The number of customs files related to textile imports reached 1,863 files, compared to 2,055 files, a decline of 192 files, or 9.4 percent. The share of these goods amounts to 7.5 percent of the total customs files.

### **Paint files**

1,671 files, representing 6.7 percent of the total files. Up from 1,387 files, with an increase of 284 files, or 20.5 percent.

### **Combined files**

2,906 files, compared to 1,323 files a year ago, an increase of 1,583 files, or about 120 percent. The share of these files is 11.6 percent of the total customs files.

As for the remaining files, they are: machinery 1,065 files (3.5 percent), mechanics 547 files (2.2 percent), files approved in the country of origin, 406 (1.6 percent), energy 227, elevators 89 and pressure machines 88.

## FILES BY GATE

*In the port of Tripoli, it accounted for 8 percent and at Masnaa 2.5*

*File assessment: increased in Beirut port by 25% and the airport by 26 percent*

### Beirut Port

15,131 files were handled, compared to 12,063 files in 2020, an increase of 3,068 files, or 25.4 percent. These files constitute 60.5 percent of the total.

### Beirut Airport

The number of files that were subjected to a conformity assessment and received through Beirut Airport was 7,239, compared to 5,736 files, an increase of 1,503 files, or more than 26 percent. These files constituted about 29 percent of the total.

### Port of Tripoli

In the port of Tripoli, the number of customs files

assessed for conformity increased to 2,016 files, compared to 560 files, an increase of 1,456 files, or 260 percent. It constitutes 8% of the total

### Massnaa

The Al Masnaa border crossing witnessed an escalating movement. There, conformity assessment was carried out for 625 files, compared to 430 files in 2020, with an increase of 195 files, or 45.4 percent, and the percentage of these files from the total amounted to 2.5 percent.

As for the rest of the points of entry, the customs files processed and passing through were: 26 files through Abboudieh, 3 files in Aarida and one file at the port of Tyre.

## FILES ACCORDING TO POINTS OF ENTRY

Types of files	Pre-shipment assessment	chemistry	electricity	medical	elevators	mechanical	energy	paint	Pressure equipment	Civil engineering	textiles	Transport vehicles	Mixed files	Grand totals
Al Masnaa	0	37	147	5	0	31	19	51	0	2	233	2	98	<b>625</b>
Beirut port	406	2,817	3,520	800	70	461	123	1,375	69	1,662	1,399	799	1,630	<b>15,131</b>
Aarida, Aabboudieh, Sidon, Tyre	0	1	0	0	0	0	0	0	0	1	27	0	0	<b>29</b>
Tripoli Port	0	206	790	370	9	16	42	163	8	161	129	234	221	<b>2,016</b>
Beirut Airport	0	1,220	2,106	2,663	10	39	43	82	11	3	75	30	957	<b>7,236</b>
<b>Totals</b>	<b>406</b>	<b>4,281</b>	<b>6,563</b>	<b>3,505</b>	<b>89</b>	<b>547</b>	<b>227</b>	<b>1,671</b>	<b>88</b>	<b>1,829</b>	<b>1,863</b>	<b>1,065</b>	<b>2,906</b>	<b>25,040</b>
<b>Daily rate of customs files</b>	<b>1.5</b>	<b>20.7</b>	<b>20.5</b>	<b>19.1</b>	<b>0.4</b>	<b>2.4</b>	<b>0.3</b>	<b>7.4</b>	<b>0.6</b>	<b>6.2</b>	<b>10.9</b>	<b>2.9</b>	<b>7</b>	<b>100</b>

## ACCREDITATION CERTIFICATES

The Industrial Research Institute continues to strengthen and support Lebanese industry. It has awarded until the end of 2021, 15 industrial establishments ISO 9001 certification, 3 establishments ISO 14001 certifications in environmental systems management, and 4 establishments ISO 13485 certification for the quality system for medical devices, and 1 HACCP certification

### Product Certification

69 products have obtained quality certification from the Industrial Research Institute, and they are distributed among 16 manufacturers

### Certificates of the Lebanese Center for Welding

In accordance with Law No. 423/2002, according to which “The Industrial Research Institute is considered the accreditation body, and authorized to issue certificates of conformity in all types of welding,” the Institute granted 162 certificates of competence in welding through the Lebanese Center for Welding. 40 trainees underwent welding training courses and two certificates were issued in the field of non-destructive testing (NDT), and one trainee underwent a course in non-destructive testing (NDT).

## New Equipments for the Electrical Laboratory

### Accurate array spectroradiometer (HAAS-1200)

The spectroradiometer is an important instrument for measuring spectrum power distributions. Everfine HAAS-1200 accurate array spectroradiometer not only can measure the spectrum power distributions in the range of 350 nm – 1000 nm fast and accurately, but also calculate and display radiometric, photometric and colorimetric quantities according to CIE publications. HAAS-1200 accurate array spectroradiometer mainly consists of main unit, specified optical fiber and application software that can realize remote measurement control and analysis of electrical, photometric and colorimetric parameters of LEDs.



### Oxygen analyzer (ULTRAMAXO2)

The UltraMax O2 is an oxygen analyzer designed to check the oxygen concentration, flow and outlet pressure of oxygen concentrators. The UltraMax O2 provides unparalleled performance and reliability from its advanced design that includes different features and operational benefits including accurate oxygen measurements.





# **INTERNATIONAL ACCREDITATION**

# IRI IN FIGURES 1000 DOCUMENTS, 30 INDICATORS, 43 AUDITORS AND 423 MAN-DAYS OF AUDIT

## IRI CONDUCTS 2300 PT TESTS FOR 1300 PARAMETERS WITH A SUCCESSFUL RATIO OF 97%

### Quality management overview

The quality management section personnel, assisted by 43 trained auditors, keep and maintain a sound quality management system in accordance with ISO 17025 (testing and calibration) & ISO 17020 (inspection) requirements.

With 1000 controlled documents, 30 Key Performance Indicators continuously monitored and 423 man-days of audits and assessments performed, the competence of IRI was recognized from the most rigorous accreditation bodies in the world (successively DAKKS and ANAB).

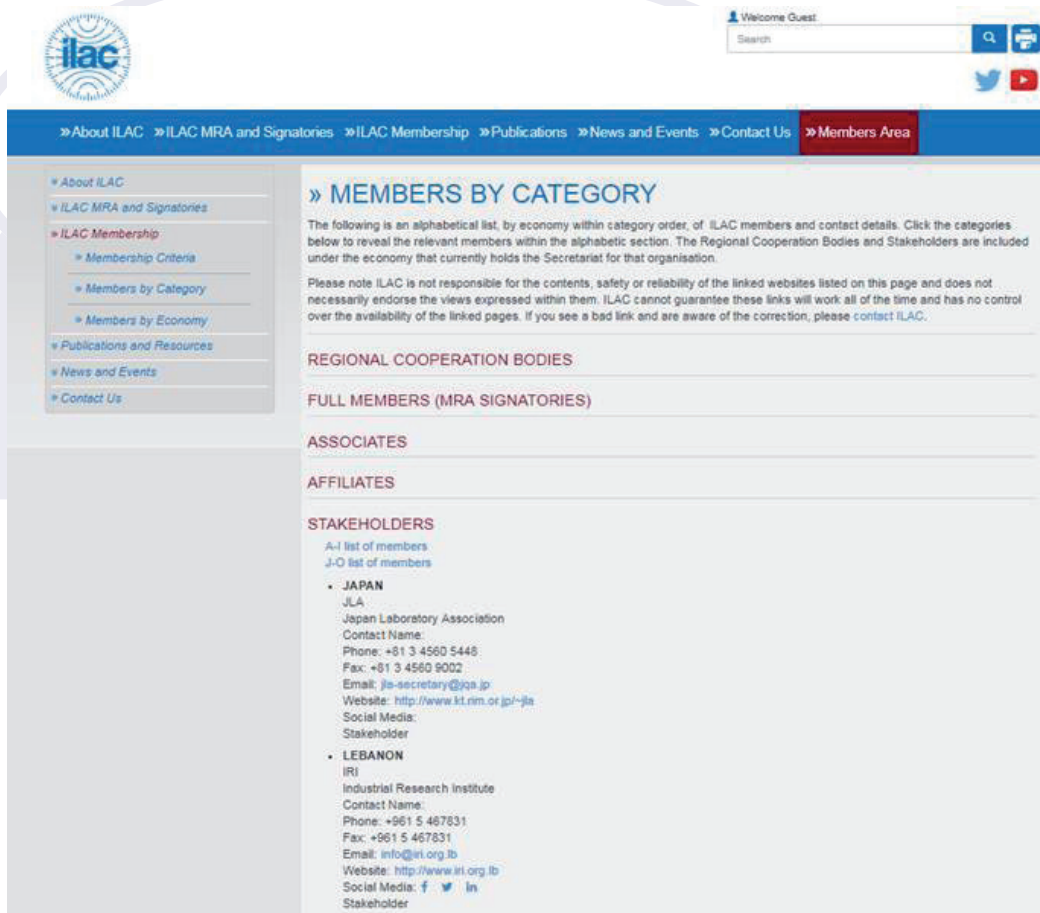
All of the accreditation organizations mentioned above are full members in the international organizations IAF and ILAC and signatories of mutual recognition. This make the institute's reports and results trustable and recognized all over the world.

Also, the

Industrial Research Institute is a stakeholder member in the international organization ILAC since 2014.

Moreover, IRI regularly participates in international proficiency testing rounds to validate its results. Until date, 2300 tests were done for 1300 parameters with a successful ratio of 97%.

This robust quality management system enabled

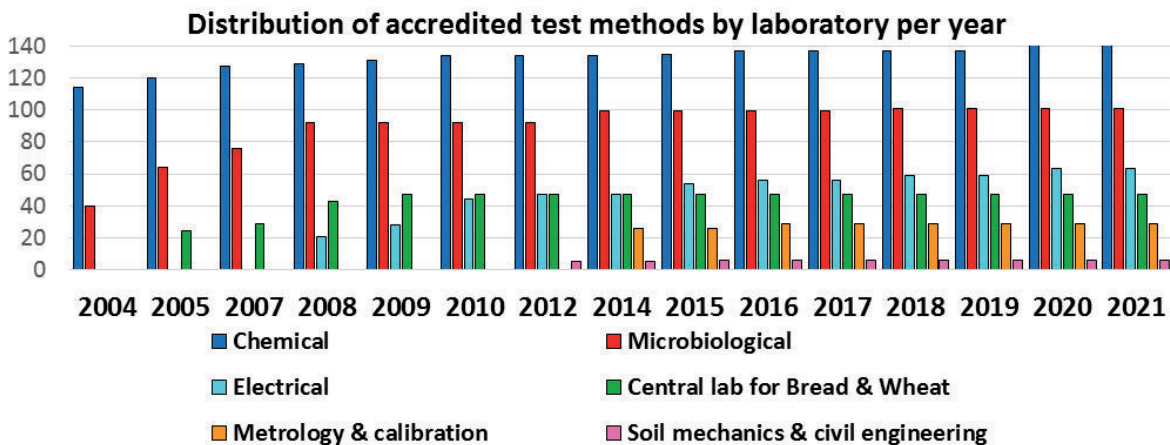


the Industrial Research Institute to become accredited according to ISO 17025 (since 2004) & ISO 17020 (since 2017) requirements. This helped the Institute to be a key player in the National Quality Infrastructure and earn the confidence of the most prestigious national and international organizations thus enhancing its network of partnership. Furthermore, the Institute is working towards achieving accreditation according to ISO 17065 (product certification) requirements.

Details of the scopes of accreditations are available on the website: <http://iri.org.lb> in the accreditation section and on the ANAB accreditation body website: <http://anab.ansi.org>

The scope of accreditation according to ISO 17020 requirements covers the inspection of imported goods subject to National decrees, inspection of goods for export as well as inspections according to customers' specific requirements. It covers the following:

Methods and Procedures	Type and Range of Inspection	Items, Materials OR Products Inspected
Boilers Ceramic Tile Cosmetic Diapers Electrical Appliances Fire Extinguishers Food Gas Cylinders Glass Medical Items Notebook Oil Sanitary Wares Solar Water Heaters	Qualitative and /or Quantitative  Inspection of New Products	Internal Procedures: PR/CFM/03 IT/CFM/04 IMP/CFM-e/01 to 04 IMP/CFM-h/01 to 32 IMP/CFM-n/01 to 03 IMP/CFM-r/01 to 07 IMP/CFM-s/02 & 03 Customer-Provided Inspection Requirements



The scope of accreditation according to ISO 17025 requirements covers over 390 test methods in different fields as detailed below:

- Chemical, physic-chemical and microbiological testing of food and animal feeding stuff, vegetable oils, water for human consumption & waste water, cosmetics, wet wipes & baby diapers,
- Electrical testing of household appliances, electrical products, luminaires, lamps, lead acid batteries, circuit breakers & energy meters,
- Physico-chemical and rheological testing of grain, flour, cereals, pulses, feed, milled products & by products in bulk and sacs,
- Mechanical calibration of conventional masses (class E2 & lower) and balances (on-site & in permanent laboratories),
- Physico-mechanical testing of cement and ceramic tiles.

An extension of the accreditation scope was granted for the following fields as detailed below:

Activity / Field	Item / Test	Standard / Method
Chemical	Water and Wastewater: - Chemical Oxygen Demand - Total Kjeldahl Nitrogen - Total suspended solids	- ISO 6060, AOAC 973.46 (E, F) - ISO 5663, AOAC 973.48 - ISO 11923, EPA 160.2
Electrical	Static energy meter: - Limits of error due to the variation of the current - Meter constant	- IT/ELC/44 based on NL CYS EN 62053-21 (clause 8.1) - IT/ELC/44 based on NL CYS EN 62053-21 (clause 8.4)
	Electromechanical energy meter - Limits of error due to the variation of the current - Meter constant	- IT/ELC/44 based on NL CYS EN 62053-11 (clause 8.1) - IT/ELC/44 based on NL CYS EN 62053-11 (clause 8.4)





## CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

**Industrial Research Institute**  
**Lebanese University Campus, IRI Building,**  
**Hadath (Baabda)**  
**Beirut, Lebanon 11-2806**

Fulfills the requirements of

**ISO/IEC 17020:2012**

In the field of

**INSPECTION**

This certificate is valid only when accompanied by a current scope of accreditation document.  
The current scope of accreditation can be verified at [www.anab.org](http://www.anab.org).



R. Douglas Leonard Jr., VP, PILR SBU  
Expiry Date: 29 August 2023  
Certificate Number: AI-2499



An inspection body's fulfilment of the requirements of ISO/IEC 17020:2012 means the inspection body meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid inspection results (refer to joint ISO-ILAC-IAF Communiqué dated Sept 2013).



# CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

**Industrial Research Institute**  
Lebanese University campus, IRI Building,  
Hadath (Baabda) Beirut, Lebanon 11-2806

Fulfills the requirements of

**ISO/IEC 17025:2017**

In the fields of

**TESTING and CALIBRATION**

This certificate is valid only when accompanied by a current scope of accreditation document.  
The current scope of accreditation can be verified at [www.anab.org](http://www.anab.org).

R. Douglas Leonard Jr., VP, PILR SBU  
Expiry Date: 29 August 2022  
Certificate Number: ACT-1898



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



**INTERNAL  
& EXTERNAL ACTIVITIES**

## MR SELIM KFOURY REPRESENTS THE INDUSTRIAL RESEARCH INSTITUTE IN THE 21ST MEETING OF THE COORDINATING COMMITTEE FOR THE ARAB INDUSTRIAL RESEARCH CENTERS

As every year, the Industrial Research Institute's Administrative Director Selim Kfoury represented IRI in the 21st meeting of the Coordinating Committee for the Industrial Research Centers

in Arab countries. The meeting was held online through videoconferencing technologies on Tuesday 23/11/2021

***Report and Recommendations  
of the twenty first meeting of the Coordinating Committee  
for the Industrial Research Centers in Arab countries  
Tuesday 23/11/2021  
(via videoconferencing technology)***

Within the framework of the fulfillment of the work program for 2021 of the Arab Industrial Development and Mining Organization (AIDMO), the 21st meeting of the Coordinating Committee for the Industrial Research Centers in Arab countries was held by videoconferencing on Tuesday 23/11/2021 in cooperation with the ESCWA Technology Center (ETC), with the participation of experts from 15 Arab countries, namely: Algeria, Egypt, Iraq, Jordan, Lebanon, Libya, Mauritania, Morocco, Palestine, Saudi Arabia, Somalia, Sudan, Tunisia, United Arab Emirates and Yemen, as well as the ESCWA Technology Center.

The Industrial Research Institute was represented in this meeting by its Financial and Administrative Director, Mr Selim Kfoury

After a review and discussion of the items on the agenda, the following was agreed upon:

**First:** Follow-up on the implementation of the recommendations of the 20th meeting of the Coordination Committee for Industrial Research Centers in the Arab Countries.

The committee reviewed the efforts of the Organization in the field of following up on the implementation of the recommendations of the 20th meeting and recommended the following:

- valuing the efforts of the Organization in its distinguished follow-up of the recommendations of the Committee made in the 20th meeting



- requesting the members of the committee to provide the electronic portal of the Coordination Committee for Industrial Research Centers in the Arab countries with information, studies, statistics and research outputs related to industrial applications in these centers.

**Second:** The activity of the Industrial Development Department between the meeting numbered 20 and 21 of the Committee.

The Committee was briefed on the activities of the Organization during the period between the 20th and 21st meetings. The Committee recommends:

- 1- Welcoming the National Research Center in the Arab Republic of Egypt to cooperate in organizing a workshop on Investment-stimulating legislation in the field of scientific research and technology alongside both the Organization and the ESCWA Technology Center, to be held in 2022
- 2- Inviting the Organization to hold a preparatory meeting between the organizing parties to discuss the necessary arrangements for holding this workshop.

**Third:** Successful experiences of the Arab industrial research centers, a presentation on the establishment of an Arab industrial observatory. The committee listened to the successful experiences at the industrial research centers in the Arab countries presented by the following:

**The first Experience:** the role of the ESCWA Center in supporting small and medium enterprises and entrepreneurship in the Arab countries. Eng. Nael Al-Mulqi – National Director – ESCWA Technology Center.

**The second Experience:** the establishment of an Arab industrial observatory along the lines of the Jordanian experience.

Mr. Ahmad Hammad – Director of Economic Policies and responsible for following up on the Industrial Observatory - Ministry of Industry, Trade and Supply / Hashemite Kingdom of Jordan.

**The third Experience:** the experience of the National Center for Water and Energy at the UAE University in developing solutions for the sustainability of water resources and the preservation of the environment.

Dr. Mohsen Sherif – Director of the National Center for Water and Energy – United Arab Emirates University / United Arab Emirates.

**The fourth Experience:** the experience of the Agency for the Promotion of Industry and Innovation. Dr. Sinda Zairi – Department of International Cooperation – Agency for the Promotion of Industry and Innovation / Republic of Tunisia.

**Fifth Experience:** The experience of the Industrial Research and Development Authority in non-industrialization.

Dr. Ahmed Anwar Al-Qaisi - Industrial Research and Development Authority / Republic of Iraq.

**Sixth Experience:** The experience of the Supreme Council for Creativity and Excellence.

Dr. Maysoon Ibrahim – Development Technology Expert – Member of the Board of Directors – The Supreme Council for Creativity and Excellence / State of Palestine.

**The seventh Experience:** the experience of the Industrial Research Center in Libya.

Geologist. Salahuddeen Mohammad al-Turki – Director of the Department of Geological Research and Mining – Industrial Research Center / State of Libya.

**The Eighth Experience:** Initiatives of the Academy of Scientific Research and Technology (some models and experiments).

Mr. Mohammed Al-Ghamry - Arab Academy for Science, Technology and Maritime Transport / Arab Republic of Egypt.

***The Ninth Experience:*** The vision of the Metals Research and Development Center and the mechanisms of cooperation with industry.

Dr. Khaled Ibrahim – Metals Research and Development Center / Arab Republic of Egypt.

***The Tenth Experience:*** Technology incubators and startups: a step towards linking academia with industry (a case study on the National Research Center).

Dr. Ousama Dewedar – Assistant Professor and Member of the Technology Transfer and Commercialization and Innovation Support Office (TICO) / National Research Center / Arab Republic of Egypt.

***The Eleventh Experience:*** the experience of the Moroccan Foundation for Advanced Sciences, Innovation and Research (MAScIR) to face the repercussions of the Corona pandemic (the successful enterprise MOLDIAG).

Eng. Mounir Watassen – Director of Transactions Development and Valuation at MACsIR Foundation / Kingdom of Morocco.

***The Twelfth Experience:*** The Experience of the Industrial Training and Research Institute.

Dr. Ahmed Mohammed Al-Anwa – Dean of the Industrial Training and Research Institute / Republic of Yemen.

The participants recommended the following:

- A. Inviting the mineral authorities in the Arab countries to intensify investment in the fields of research and development in various industrial sectors with the development of clear mechanisms for marketing local research, innovations and inventions.
- B. Establishing knowledge and innovation centers with the aim of promoting sustainable industrial development in the Arab countries.
- C. Thanking the Ministry of Industry, Trade and Supply in the Hashemite Kingdom of Jordan for the participation of Mr. Ahmed Hammad, Director of Economic Policies, who is responsible for monitoring the observatory in the ministry, and who submitted a paper on “Establishing an Arab Industrial Observatory along the lines of the Jordanian Experience” and asking him to make this paper available to the Organization in order to circulate it to the Arab countries for guidance.

**Fourth:** The Institute for Training and Industrial Consultations of the Arab Industrial Development, Standardization and Mining Organization.

After reviewing the goals and activities of the Institute for Training and Industrial Consultation of the Arab Industrial Development, Standardization and Mining Organization, the Committee recommends the following:

- A- The Industrial Research Centers in Arab Countries shall benefit from the capabilities of the Organization’s Institute for Training and Industrial Consultation to provide technical support to these centers in the field of training, conducting courses and providing technical advice
- B- Requesting industrial research centers to provide the organization with their lists of specialized experts to use them to contribute to organizing specialized courses and workshops with the aim of developing the capabilities of Arab professionals working in the industrial sector
- C- Signing cooperation agreements between the Institute and industrial research centers for the establishment of specialized field training courses in common areas of specialization.

**Fifth:** The Industrial Development Department’s draft work program for the years 2023-2024.

After presenting the draft work program of the Industrial Development Department in the Organization, the committee recommended the following:

- Valuating the Organization's efforts in programming projects related to current and future developments related to comprehensive Arab industrial development
- Inviting the committee to cooperate with the Organization in jointly organizing the implementation of projects of common interest.

A presentation was also made on the Arab Industrial Products Requests and Offers Platform by the Arab Industrial Development, Standardization and Mining Organization, and the committee recommended the following:

- Thanking the Arab Industrial Development, Standardization and Mining Organization for its initiative in establishing this platform to contribute to the achievement of Arab industrial integration
- Encouraging the industrial entities cooperating with the industrial research centers in the Arab countries to provide the Organization with the data of the industrial mineral companies and institutions in the industry and mining sector to promote them through the platform
- Promoting the platform's website (<https://apip.online>) through the websites of the industrial research centers in the Arab countries.

At the conclusion of the meeting, the members of the committee expressed their thanks and appreciation to the Arab Industrial Development, Standardization and Mining Organization for the fruitful efforts it is making to enhance cooperation between Arab countries in the fields of sustainable technological industrial development. The ESCWA Technology Center was also thanked for its permanent cooperation with the organization.



IRI

## ENFORCEMENT AND APPLICATION OF THE CANADIAN FOOD ALLERGEN LABELLING REGULATIONS

Professor Joseph MATTA and Mr Halim El Bayeh, representing the Industrial Research Institute, participated in “Enforcement and application of the Canadian food allergen labelling regulations”, organized by the Canadian Food Inspection Agency and the Embassy of Lebanon in Ottawa. The conference dealt with the Food and Drug Regulations which require that most prepackaged foods carry a label and that the ingredients appear on labels in decreasing order of proportion. However, some ingredients used in food products which were previously exempt from declaration in the list of ingredients, (e.g., components of margarine, seasoning and flour) will now be required to appear on food labels also.

Based on consultations with stakeholders, including allergy associations and the medical community, Health Canada developed amendments to the Regulations to enhance labelling requirements for specific priority allergens, gluten sources and added sulphites in prepackaged foods sold in Canada.

**To all Lebanese Industrialists and Distributors interested in the Canadian Market**  
**The Embassy of Lebanon to Canada**  
 invites you to join the free training seminar  
 by the **Canadian Food Inspection Agency**  
 (CFIA)

**“ENFORCEMENT AND APPLICATION OF THE CANADIAN FOOD ALLERGEN LABELLING REGULATIONS”**  
 don't miss this opportunity and learn about the new regulations

Thursday, December 2nd, 2021  
 9am EST (4pm Beirut time)

**Register Now:**  
[https://us06web.zoom.us/webinar/register/WN\\_WQZStYzTHSlepG5oULdeg](https://us06web.zoom.us/webinar/register/WN_WQZStYzTHSlepG5oULdeg)  
 or send an email to [vanessa.naddaf@lebanonembassy.ca](mailto:vanessa.naddaf@lebanonembassy.ca).

  
 Embassy of Lebanon  
 OTTAWA

 Canadian Food Inspection Agency

Assali Advertising & Marketing Inc.



## SCIENTIFIC WEBINAR “NUTRITIONAL CARE AMID AN ECONOMIC AND SANITARY CRISIS”

The Department of Nutrition at the Faculty of Pharmacy in the Saint Joseph University – Beirut (USJ) organized on September 29th and 30th, and October 1st, 2021 a scientific webinar entitled “Nutritional care amid an economic and sanitary crisis” intended for the general public and health professionals.

This webinar addressed the topics of nutritional and clinical care amid a sanitary crisis (Post-COVID-19), the role of supplements and vitamins, sanitary problems post COVID-19, food security, etc. Professor Joseph Matta, representing the Industrial Research Institute (IRI), made a presentation on the topic of quality control and the results of research on face masks and sanitizers. He also

**USJ**  
Université Saint-Joseph de Beyrouth  
Faculté de pharmacie  
Département de nutrition

**Prise en charge nutritionnelle en crise économique et sanitaire**

29, 30 septembre et le 1 octobre, 2021

**Mercredi 29 septembre 2021**

- **Prise en charge nutritionnelle et clinique en cas de crise sanitaire (Post COVID-19)** | Modératrice Dr. Carole Saada Riaschy
  - 17h-17h30 **Prise en charge des problèmes pulmonaires et musculaires, Post COVID-19**  
Pr Fadi Haddad | M<sup>me</sup> Christine Helou
  - 17h30-17h45 **Prise en charge nutritionnelle des femmes enceintes, Post COVID-19**  
Dr Tatiana Papazian
  - 17h45-18h **Le rôle des suppléments, vitamines et autres dans la gestion du post COVID-19**  
Dr Nicole Sayegh
  - 18h-18h30 questions-réponses

**Jeudi 30 septembre 2021**

- **Axe Multidisciplinaire (Post COVID-19)** | Modérateur Dr. Khalil Helou
  - 17h-17h15 **Problèmes psychiques, émotionnels post COVID-19**  
Dr Marie-Anne El Khoury
  - 17h15-17h30 **Problèmes de perte de goût (agueusie) et de l'odorat (anosmie) post COVID-19**  
Pr Fadi Haddad
  - 17h30-17h45 **Rôle de l'activité physique dans la prévention et la prise en charge du Post COVID-19**  
Pr Nour El Helou
  - 17h45-18h **Masques et produits de désinfections sur le marché**  
Pr Joseph Matta
  - 18h-18h30 questions-réponses

**Vendredi 1 octobre 2021**

- **La Sécurité alimentaire au Liban** | Modératrice Dr. Cynthia Helou
  - 17h-17h40 **Sécurité alimentaire au Liban**  
Dr Riad Saadeh, Science Plénière
  - 17h40-18h20 **Rôle du Directeur et de l'Institut de recherche industrielle (IRI) dans la protection des consommateurs**  
Dr Elie Bou Yazbeck | Pr Joseph Matta
  - 17h20-17h35 **Entre COVID-19 et crise économique, comment équilibrer notre alimentation.**  
Dr Nathalie Yaghi
  - 17h35-18h5 questions-réponses

explained the role of the Industrial Research Institute in consumer protection.

## PRODUCTS SAFETY STANDARDS AND CONFORMITY

The Industrial Research Institute, represented by Professor Joseph MATTa and Mr Halim El Bayeh, presented a virtual training on Products safety standards and conformity, organised by SMDC in partnership with USAID. Technical assistance provided by IRI in a view of strategic vision of IRI regarding the industrial support and development was explained stating the conformity certification

**Get Your Products Certified**  
Product Safety Standards & Conformity  
Import it, Produce it, Market it, Export it...

**Prof. Joseph MATTa**  
Presenter

**Dr. Salim Hajje**  
Moderator

**JUNE 17<sup>TH</sup>, 2021 at 4 PM**  
<https://smdcevents.com/>

Stating that your products conforms with a recognized safety standard can be an excellent marketing tool to assure your customers that your products are safe. What is the Role of IRI in the product conformity evaluation & consumer safety & how can you obtain & benefit from the Conformity certification in Lebanon?

In this webinar you will learn about:

- What is Product Safety?
- Conformity Certification in Lebanon
- Certification for Exporting your Products
- Role & Scientific Capacity of IRI
- Inspection and Control

About the speaker:  
Prof. Joseph MATTa holds a PhD degree from the University of Lille, France. He is the Applied Research & Testing Director of the Industrial Research Institute (IRI), Chair of the Technical Committee "European Federation of National Associations of Measurement, Testing and Analytical Laboratories."  
Lead auditor of Food Safety Management Systems ISO 22000

IN PARTNERSHIP WITH: **USAID**  
FROM THE AMERICAN PEOPLE

ORGANIZED BY: **SMDC**  
VIRTUAL EVENTS

in Lebanon, the IRI Products Certification as well as inspection and control.

# THESIS ABOUT “ASSESSMENT OF PREREQUISITE PROGRAMS IMPLEMENTATION AND HYGIENE STATUS AT FOOD PACKAGING COMPANIES IN MOUNT LEBANON: CROSS SECTIONAL STUDY”

Professor Joseph Matta and Mr Elie Melky participated in the doctoral thesis jury at the Notre Dame University NDU – The Faculty of Nursing and Health Sciences on April 15th, 2021. The thesis entitled “Assessment of Prerequisite Programs Implementation and Hygiene Status at Food Packaging companies in Mount Lebanon: Cross Sectional Study”, was carried out in collaboration with the Industrial Research Institute.

Food packaging has a critical role in all food types and along the food chain from product preservation to transportation, distribution, storage, retailing, and end-use. However, it can become a source of contamination and transfer of microorganisms to the packed food when its hygienic status is not well maintained. The aim of the study was to evaluate the Prerequisite programs (PRPs) implementation in 5 food packaging companies across Mount Lebanon through on-site inspections and to assess the compliance of contact surfaces, employee hands and packaging materials to microbiological specifications. PRPs assessment and verification activities showed the need for companies to strengthen their PRP planning and implementation such as: proper cleaning programs, frequent training on personnel hygiene and hand washing practices. Recommendations extend to all companies visited since even the companies with the highest scores had contamination problems. Food packaging companies should direct more effort towards monitoring, enhancing PRPs and allocating budget for these programs to implement food safety management programs not only quality management programs. Effectiveness of implementation of PRPs



**THE FACULTY OF NURSING AND HEALTH SCIENCES  
AT NOTRE DAME UNIVERSITY-LOUAIZE**

Cordially invites you to attend the Master’s Thesis Defense of Science in Food Safety and Quality Management of

**Ms. MARILYN ABDOU ABDESSATER**

Titled

**Assessment of Prerequisite Programs Implementation and Hygiene Status at Food Packaging Companies in Mount Lebanon: Cross-Sectional Study**

scheduled on

**Thursday, April 15, 2021 | 6:00 pm | Online**

Committee

**Dr. Loyal Karam, Supervisor | Prof. Joseph Matta, Committee Member | Mr. Fady Fayad, Committee Member**

The thesis research project was carried out in collaboration with the Euro-Lebanese Centre for Industrial Modernization – ELCIM, at the Industrial Research Institute (IRI)

---

Microsoft Teams meeting  
Join on your computer or mobile app  
[Click here to join the meeting](#)



Notre Dame University - Louaize Zouk; Mosbeh, Lebanon P.O.Box: 72, Zouk Mikael  
[Learn More](#) | [Help](#) | [Meeting options](#) | [Legal](#)

should be assessed by verification activities on a planned routine basis. Therefore, verification activities should not be limited to one-time testing, since end product testing in general has several limitations. Food packaging companies should take into consideration within their scope the effect of distribution and various points in the supply chain especially when their product is being sold at retail markets. Hygienic status should be maintained where proper wrapping and sealing of products should be carried to prevent contamination along the route before it reaches the consumer. Food packaging hygienic status has a great impact on the quality and safety of food

especially when used without further sterilization for temperature sensitive food products. The study was conducted on a small sample of factories due to confidentiality concerns; but it added to the body of science shedding light on the poor status of PRPs and the need to collect more data and assess compliance in both packaging and food companies. Studies should also assess status of exporters supplying food packaging worldwide. More studies should evaluate other testing parameters such as the presence of spores that withstand heat exerted during processing. Finally, clearer legislations and guidelines

should be issued by national and international bodies for the variety of packaging material used; since guidelines are mainly present for chemical parameters such as chemical migration. Guidelines should include specific bacterial parameters to be tested, testing method, cut-off points for acceptability, and implementation of best practices for food packaging companies. This participation and the research topic revealed the importance of cooperation between IRI and the academic sector in the promotion of applied scientific researches to support industrial improvement.

## IMPLEMENTATION OF THE SUSTAINABLE DEVELOPMENT GOAL ON “THE RIGHT OF WOMEN AND GIRLS TO ACCESS THEIR OWN SANITARY PRODUCTS”

Representing the Industrial Research Institute, Professor Joseph Matta shared in a round table discussion at the Parliament presided over by Dr. Inaya Ezzeddine, chairperson of the Women and Children Parliamentary Committee, that was organized by the Parliamentary committee following up the implementation of the sustainable development goal on “The right of women and girls to access their own sanitary products.” The possibility of developing an action plan to provide the necessary resources for this in the short and long term, was discussed in the presence of Ministers of the caretaker government, Ministers of Industry Imad Hoballah, Economy and Commerce Raoul Nehme, Social Affairs Ramzi Musharrafeh, as well as M.P. Ali Bazzi, and representatives of health associations and institutions and international organizations.

The participants pointed out that local

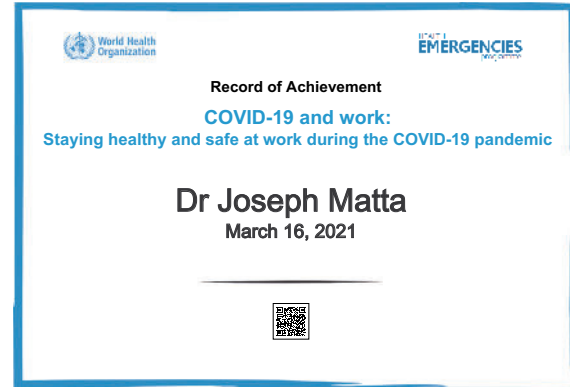
manufacturing provides only 30% of the local needs and is limited to one factory. A number of ideas were explored, including: providing various facilities to industrialists willing to invest in the production of these goods, securing machinery and tax exemptions on raw materials, and exploring the possibility of international donor organizations supporting these industries as well as the Industrial Research Institute.



## WHO CERTIFICATES

In a view of strategic vision of IRI regarding the health support valorization, Professor Joseph MATTA, Applied research and testing acting director, demonstrated considerable record

of achievement in the context of Coronavirus disease COVID-19 pandemic, developed by World Health Organization (WHO – Health Emergencies Program).



## VISITS BY DELEGATIONS OF UNIVERSITY STUDENTS

Delegations from Lebanese universities visited IRI’s laboratories to learn about the Institute’s scientific developments, particularly the progress in the fields of environment, public health, petrochemicals, food safety, cosmetics



## METROLOGY LABORATORY ACTIVITIES

The Industrial Research Institute represented by the Head of Metrology Laboratory, Eng. Elias Maalouf and the Unit Head Mr. Edgar Shaaya attended on the 3rd of November, 2021 the virtual closing meeting of the technical cooperation project “Quality infrastructure for the promotion of product and consumer protection”

The project, guided by PTB, was addressed to National Metrology Institute from four countries Lebanon, Egypt, Jordan and the Palestine territories and planned for three years with a financial contribution by the German government.

The main objective of the project is to improve the conditions for the increased utilization of quality infrastructure services, in particular, metrology, for the promotion of trade and

consumer protection which came to IRI with several benefits

- 1) Establishment of a new service, calibration of vertical fuel tanks
  - a) Trainings for staff on new service and software
  - b) Acquisition of new equipment related to the service (Leica MS60 3D scanner, ...)
- 2) Technical assistance and pre-assessment of the existing temperature calibration laboratory
  - a) Acquisition of new equipment for the temperature laboratory
  - b) Bilateral comparison in temperature with the National Metrology Institute NIS in Egypt



IRI



**APPLIED RESEARCH  
& STUDIES**

## THE INSTITUTE PERFORMED 7 ENVIRONMENTAL AND TECHNOLOGICAL STUDIES AND ANALYZES IN 4 FACTORIES

The Industrial Research Institute keeps pace with the current status of industries and factories, especially the ones that received ISO environmental certification from the Institute, and ensures their continuous compliance with the scientific and technological standards required to maintain a healthy environment for human beings and preserve the nature.

The IRI completed 7 studies and analyzes in 4 factories, among which studies in environmental auditing and in environmental analyzes and technical field studies, as follows:

### **Comprehensive Environmental Analyzes and Technical Field Studies**

- Cimenterie Nationale s.a.l.
- Liban Cables
- Unipack Tissue Mill s.a.l.
- Henkel Lebanon s.a.l.





# SCIENTIFIC PUBLICATIONS




Because scientific research contributes to the progress and preservation of societies by ensuring a better life, the Industrial Research Institute contributed during the year 2021 to research the results which were published in international scientific publications, and which contributed to the advancement of science and knowledge. Professor Joseph MATTA, Director of Applied Research and Laboratories at the Industrial Research Institute has published scientific papers on health, nutritional and environmental issues.

Environmental Science and Pollution Research  
<https://doi.org/10.1007/s11356-021-17924-2>

RESEARCH ARTICLE



## Association between dietary quality indices and serum polychlorinated biphenyls and organochlorine pesticides levels among Lebanese adults

Mireille Harmouche-Karaki<sup>1</sup>  · Maya Mahfouz<sup>1</sup> · Khalil Helou<sup>1</sup> · Jawaher Obeyd<sup>1</sup> · Pascale Salameh<sup>2</sup> · Joseph Matta<sup>1,2</sup> · Jean-François Narbonne<sup>4</sup>

Received: 3 August 2021 / Accepted: 30 November 2021  
 © The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2021

Responsible Editor: Lotfi Aleya

✉ Mireille Harmouche-Karaki  
 mireille.harmouche@usj.edu.lb

Maya Mahfouz  
 maya.mahfouz1@net.usj.edu.lb

Khalil Helou  
 khalil.helou@usj.edu.lb

Jawaher Obeyd  
 jawaher.obeid@net.usj.edu.lb

Pascale Salameh  
 psalameh@ul.edu.lb

Joseph Matta  
 chem@iri.org.lb

Jean-François Narbonne  
 narbonne.jf@gmail.com

<sup>1</sup> Department of Nutrition, Faculty of Pharmacy, Saint Joseph University, Riad el Solh, Beirut, Lebanon

<sup>2</sup> Clinical and Epidemiological Research Laboratory, Faculty of Pharmacy, Lebanese University, Hadath, Lebanon

<sup>3</sup> Industrial Research Institute, Lebanese University, Hadath, Lebanon

<sup>4</sup> University of Bordeaux, Bordeaux, France

Med-DQI/Med-DQIif Mediterranean Diet Quality Index

Published online: 06 January 2022

 Springer



ScienceDirect



Chemosphere  
 Volume 266, March 2021, 129211



## Maternal and cord serum levels of polychlorinated biphenyls (PCBs) and organochlorine pesticides (OCPs) among Lebanese pregnant women and predictors of exposure

Khalil Helou <sup>a</sup> , Joseph Matta <sup>a, b</sup> , Mireille Harmouche-Karaki <sup>a</sup> , Nicole Sayegh <sup>a</sup> , Hassan Younes <sup>c</sup> , Yara Mahfouz <sup>a</sup> , Maya Mahfouz <sup>a</sup> , Sara Karake <sup>a</sup> , Ramzi Finan <sup>d, e, f</sup> , Georges Abi-Tayeh <sup>e, f, g</sup> , Jean-François Narbonne <sup>h</sup> 

- <sup>a</sup> Department of Nutrition, Faculty of Pharmacy, Saint-Joseph University of Beirut, Medical Sciences Campus, Damascus Road, P.O.B. 11-5076, Riad Solh Beirut, 1107 2180, Lebanon
- <sup>b</sup> Industrial Research Institute, Lebanese University Campus, Hadeth Baabda, Lebanon
- <sup>c</sup> UniLaSalle University, 19 Pierre Waguët Street, 60026, Beauvais, France
- <sup>d</sup> Lebanese Society of Obstetrics and Gynecology, Adliye, Beit El-Tabib - 3rd Floor, Beirut, Lebanon
- <sup>e</sup> Faculty of Medicine, Saint-Joseph University of Beirut, Medical Sciences Campus, Damascus Road, Beirut, Lebanon
- <sup>f</sup> Hotel-Dieu de France, Saint-Joseph University of Beirut Hospital, Blvd Alfred Naccache, P.O.B.: 166830, Beirut, Lebanon
- <sup>g</sup> Lebanese Fertility Society, Adliye, Beit El-Tabib, Beirut, Lebanon
- <sup>h</sup> Honorary Professor, University of Bordeaux, France

Received 30 June 2020, Revised 10 November 2020, Accepted 2 December 2020, Available online 5 December 2020, Version of Record 11 December 2020.

Handling Editor: Andreas Sjödin



**ACTIVITIES OF THE  
EUROPEAN-LEBANESE  
CENTER FOR INDUSTRIAL  
MODERNISATION – ELCIM  
AND THE ACTIVITIES OF  
THE CENTER FOR INNOVATION &  
TECHNOLOGY - CIT**

## INTELLECTUAL PROPERTY VALORIZATION GRANTS PROGRAM

### TO ENCOURAGE COMMERCIALIZATION OF LEBANESE INTELLECTUAL PROPERTY FOR THE BENEFIT OF VARIOUS SECTORS AND TO ADVANCE THE KNOWLEDGE ECONOMY

ELCIM finalized the training of applicants within the Intellectual Property Valorization Grant Program co-funded by The Kingdom of the Netherlands and Berytech Foundation.

The program launched by Berytech under The ACT Smart Innovation Hub initiative in partnership with the Euro-Lebanese Centre for Industrial Modernization (ELCIM) at the Industrial Research Institute (IRI), aimed to mobilize academia and research institutions to work on commercializing Lebanese Intellectual Property (IP) for the benefit of various sectors and to advance the knowledge economy. An Assessment report on universities readiness to be part of the “Act Smart” innovation voucher program was also produced.

Four grants of \$25,000 each were made available through the ACT Smart Innovation Hub.

23 applications were evaluated and four teams selected.

The selected projects were in the field of:

- Concrete Masonry Units Thermally Enhanced with Phase Changing Materials
- Forced Convection Solar Drying: Agro - Food Application
- Polyphenol recovery from agri-food by-products (grape pomaces) for powder production to be used as a food additive for different food matrices (nuts, chips, biscuits).
- The production of local starter cultures for bakeries and dairy industries



The applicants presented their projects through the following involved Universities: USEK, NDU, USJ and LU.

Three projects managed to design their value proposition and validate it, size their market and design their MVP allowing them to be selected to continue receiving support through one of Berytech's accelerators: Cleanergy and Agrytech.

The selected projects were:

**Hiba Rajha (USJ) – Superpowder: The Powder Of Nature**

Dr. Hiba Rajha from the Saint Joseph University focused her project on recovering polyphenol from agri-food by-products using her newly conceived Ired-Irrad® – a patented infrared (IR) extraction technique. IR technology is based on heating the plant material with IR radiation. Dr. Rajha worked on testing IR radiations as an energy source in the processes of the extraction of bioactive compounds. She is planning on adding polyphenol powder to nuts, chips, biscuits, cereal bars, and chocolate, therefore creating a new product with a high added-value and health beneficial effects.

**Talal Salem (NDU) – CMU-PCM**

Dr. Talal Salem from Notre Dame University addressed the development of thermal energy storage systems based on sensible and latent energy storage by designing and optimizing a Concrete Masonry Unit (CMUs) that is enhanced with Micro Encapsulated Phase Changing Materials (ME-PCMs).

**Malak El Moussaoui (LU) – SoldryTech**

Dr. Malak El Moussaoui from the Lebanese University was seeking to improve the food drying process and quality to expand dried

food production and export. The system that Dr. El Moussaoui was proposing replaces the traditional sun-drying method with a closed system composed of a drying chamber, blowers, heat pump, solar water collector, photovoltaic panels, and accumulators.

This system avoids the contamination agents and hazards getting into the product during drying, conditions the air used for drying to reduce drying time and improves the quality of the final product by controlling the drying parameters.

**Training and coaching were provided by Dr Bijan Azad AUB for a total of 112 hours.**

## MAIA-TAQA PROJECT SUPPORTING A PROPER INNOVATION PROCESS

MAIA-TAQA is an ENI CBC MED co funded project which aim is to support a proper innovation process that would identify the needs, structure and commercialize creative solutions for resource efficiency services in consulting, engineering and operations.

The project will setup demonstrators in 3 Mediterranean pilot areas where innovative services will be applied: they will be related to micro-grids, photovoltaics, energy storage, solar thermal technologies and water sanitation and purification.

Partners will develop solutions for each identified barrier: capacity building program (for lack of skills); innovation desk (for lack of information); guidelines (for lack of regulation); voucher (for lack of finance) and targeted B2B events (for lack of specific matchmaking).

The main final beneficiaries are SMEs (especially from environment/utility/building sector) that can have a set of supporting instruments to overcome the existing barriers and reduce the risks to innovation.

## THE INDUSTRIAL RESEARCH INSTITUTE AND MAIA-TAQA PROJECT SET UP A PILOT WASTEWATER TREATMENT PLANT

The Industrial Research Institute is one of the 7 Partners of the Project MAIA – TAQA “Mobilizing new Areas of Investments And Together Aiming to increase Quality of life for All” co-financed by the European Commission. The aim of the Project is the Promotion of innovative Resource Efficiency services in the countries through the creation of an enabling environment based on EU-MED networks, and in particular, the development of pilot plants.

Under MAIA TAQA project, the Industrial Research Institute launched a request for proposal procedure for the construction of a Pilot Wastewater Treatment Plant on its premises at the Lebanese University Campus (Hadat), Lebanon in July 16, 2021. In September, a follow up committee of the Industrial Research Institute, the Lebanese partner of the

MAIA-TAQA project within the ENI CBC Med program was assembled to evaluate the proposals within the framework of the tender for the pilot wastewater treatment plant “Economic tender to offer services to the MAIA-TAQA project.”

Several companies showed interest and submitted their proposals. Two shortlisted companies were pre-qualified according to their financial and technical offer. Finally one contracted company with a total amount of EUR 145,000 in February 2022 was released. The works started in March



2022. It is expected to accomplish the pilot implementation by September 2022.

The Wastewater Treatment Plant is designed for the treatment of 20 cubic meters of wastewater per day. It will be connected to a 25 kW back up solar power source and the treated water will serve to irrigate the neighboring planted areas.

The plant will include the following main components:

- Settlement tank and screening for solid separation
- Neutralization system
- DAF (Dissolve Air Flotation Unit) unit for

oil and grease separation

- Advanced Moving Bed Biofilm Reactor technology (MBBR) for biological treatment

On December 14, 2021, MAIA-TAQA project team members held a Technical meeting related to the pilot project activities and review of the proposed action plan for the construction of the wastewater treatment plant at the Industrial Research Institute. And on the 25th the contract was signed with Watermaster for the start of the design of the of the waste water treatment plant at the Industrial Research Institute premises.



## TRAINING SESSIONS TO ENHANCE THE TECHNICAL AND MANAGEMENT CAPACITIES OF LOCAL SMES

Egypt, Jordan and Lebanon MAIA-TAQA Project partners conducted the ‘Training of the Trainers’ Program that was held online from February till June, 2021.

The pilot areas partners that tested Renewable Energy services, acted as real-life examples for the students, giving them the needed knowledge on field implementation, innovative technologies, information on regulatory framework issues, finance and framework implementation.

MAIA-TAQA Lebanon training focused on wastewater and water treatment technologies and was held online from February to May 2021. The training topics covered the different available technologies from traditional to innovative in addition to legal and financial aspects and best practice case studies.

Some examples of innovative waste water plant considered in the training:

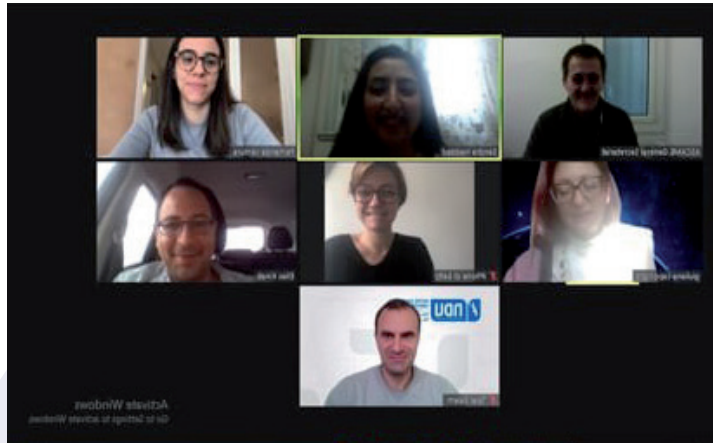
- Energy consumption and energy saving in wastewater treatment plant (WWTP)
- Large urban WWTP;
- Small scale WWTP;
- Waste water treatment plant using natural system;
- Sludge treatment plant with or without energy recovery.
- Waste water treatment for reuse in agriculture.

Also, different advanced disinfection treatments (UV vs peracetic acid) for reuse in agriculture applied to large WWTP were presented.



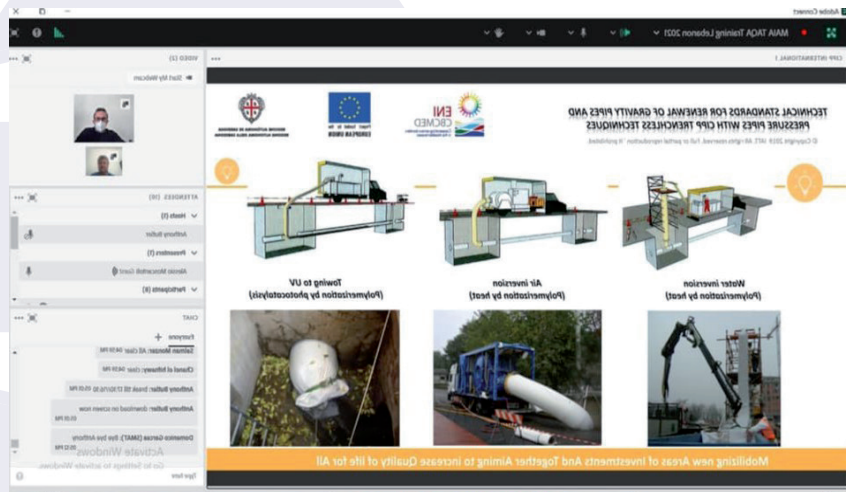
## MISCELLANEOUS ACTIVITIES OF THE MAIA TAQA PROJECT

- A fruitful conference session was held on February 4 among MAIA-TAQA project partners; ASCAME, the Association of the Mediterranean Chambers of Commerce and Industry, AAST, Arab Academy For Science & Technology, Industrial Research Institute Lebanon and QUIPO. The aim of the meeting was to :
  - Review with IRI the report about the existing field information regarding the two selected Renewable Energy Services (RES) for the Lebanese pilot.
  - Revise the existing comments presented in the



last draft of the report and advance towards a final version of this document.

- The 10th training session was held online on April, 9, 2021 using the Adobe Connect platform and included best practice cases studies for Wastewater Treatment Services.

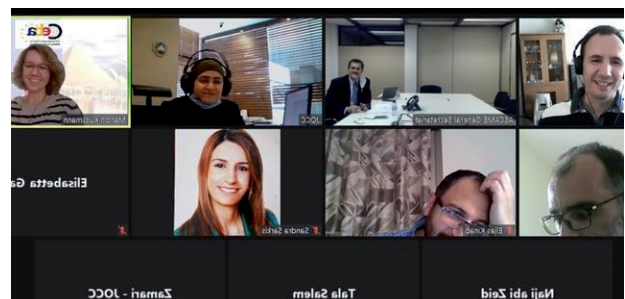


The session core target was on wastewater pipeline leakage control which is an emerging concern in the sector, especially with regards to the potential effect of leaking effluent on groundwater contamination.

12 training events are planned within the MAIA-TAQA ENI CBC Med Program funded project to enhance the technical and management capacities

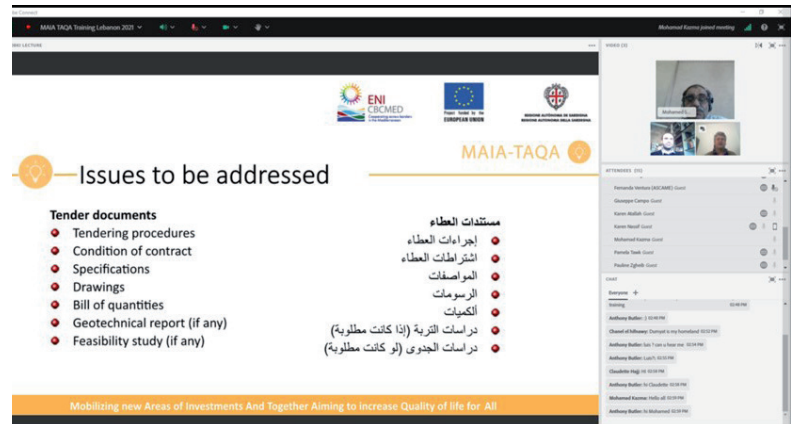
of local SMEs in Lebanon, Egypt and Jordan in “Resource efficiency services (consulting, engineering and operations)

- In the framework of the establishment of the Innovation One Stop Shop and the design of the “innovation voucher,” MAIA-TAQA Project partners met to discuss the general knowledge and skills that can be used in order to provide support to the field partners.





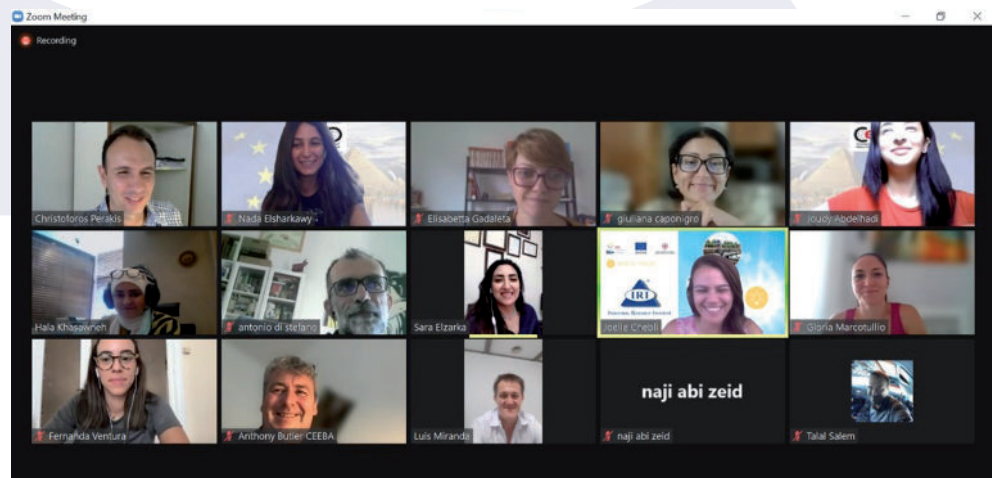
MAIA-TAQA project in a training for trainers about how to prepare tender documents and best practice case studies for Innovative Service for SMEs, within and beyond the EU.



- On 8/7/2021 The wastewater sector was tackled in Lebanon within the MAIA-TAQA project. Dr. Talal Salem, senior technical expert for the MAIA TAQA presented the project within a workshop organized by the ENI CBC MED BEEP project. It was an opportunity to explore synergies between the two EU funded projects



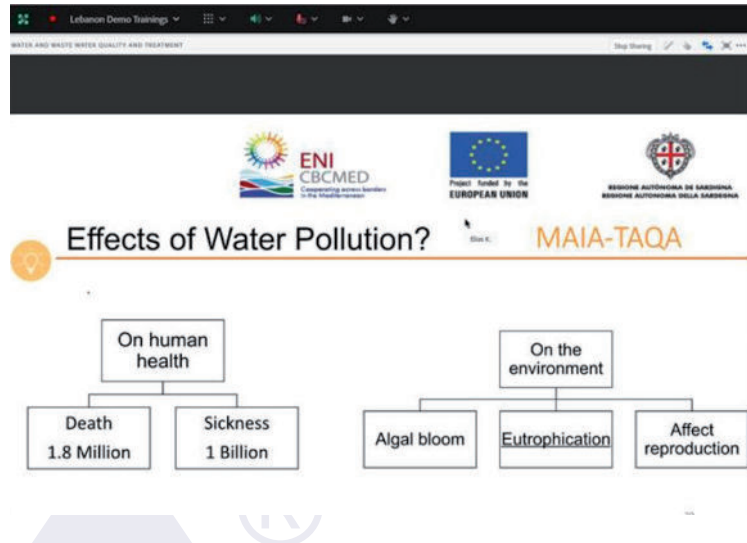
On 7/9/2021 MAIA-TAQA project held a meeting where all project partners updated the team on the progress of their work packages and discussed the upcoming activities and how to enlarge the innovative resource efficiency solutions for the renewable energy and water sectors that are currently implemented in Jordan in cooperation with the Jordan Chamber of Commerce, and in Lebanon in cooperation



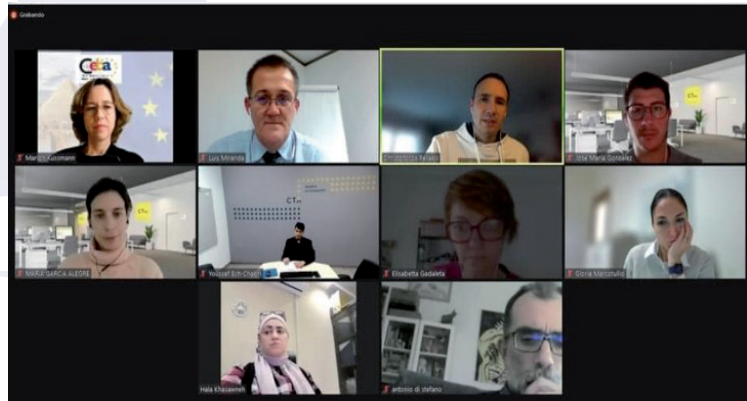
with the Industrial Research Institute Lebanon and starting from October also in Egypt with the Confederation of Egyptian-European Business Associations.

- The first demo training session for Lebanon within the training activities of the MAIA-TAQA project was delivered on Monday 11-Oct-2021 by Engineer Claudette Hage who presented the topic of Water and Wastewater Quality and Treatment.

The session was attended by an evaluation committee composed of Dr. Elias Kinab, Dr. Talal Salem, Mr. Anthony Butler and Mr. Naji Abi Zeid.



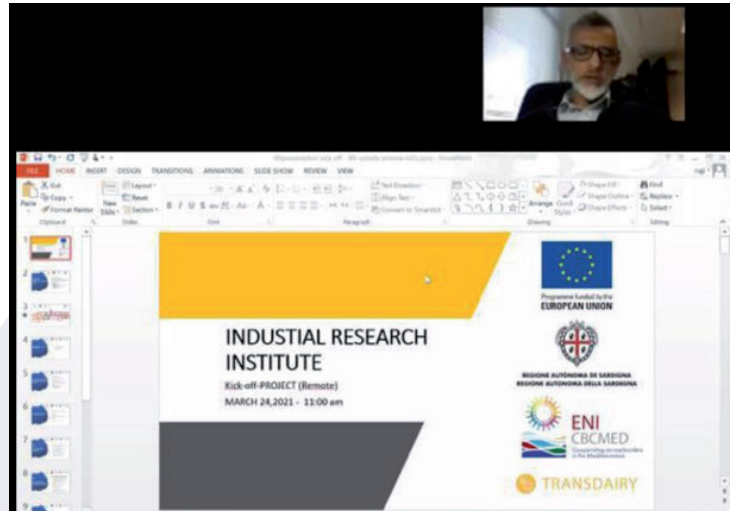
- Maia-Taqa project’s steering committee meeting attended by all partners (5/11/21).
- This project is advancing towards a successful implementation of new Resource Efficiency Services based on:
- Solar energy (Egypt & Jordan).
  - Wastewater treatment & reuse of treated water (Lebanon).



# TRANSDAIRY PROJECT

## TRANSBORDER ENABLING TECHNOLOGIES AND LIVING LABS FOR THE DAIRY VALUE CHAIN

ELCIM at IRI and Berytech are implementing partners in Lebanon for the TRANSDAIRY Project (‘Transborder Key Enabling Technologies and Living Labs for the DairyValue Chain’) funded by the European Union under the ENI CBC Med Program. The partners will establish living labs in the ICT and Bio Nano technologies, scout for innovations, and manage grant vouchers to support innovators in the creation of spin-offs in the Dairy Value Chain.



On March 24th, 2021, the ENI CBC Med Program Transdairy Project was launched in Lebanon: During this kick off meeting, various stakeholders from the Dairy Value Chain, entrepreneurs from the ICT sector as well as academics from main universities, gathered

to discuss Empowering Technology Transfer, Innovation and Entrepreneurship in the Dairy value chain and how to grow this ecosystem in the Mediterranean.

## FIRST FOCUS GROUP MEETING

The 1st Focus Group Session organized by the ELCIM team at the Industrial Research Institute Lebanon in collaboration with Berytech, the Lebanese partners of the Transdairy Project part of the ENI CBC Med Program was held on March 6, 2021.

The session gathered companies/persons involved in the Dairy Value Chain and the ICT industry, representatives from the Chambers of Commerce, Association of Lebanese Industrialists - ALI and Academia as well as researchers in the Bio /Nano sector . Discussions focused on

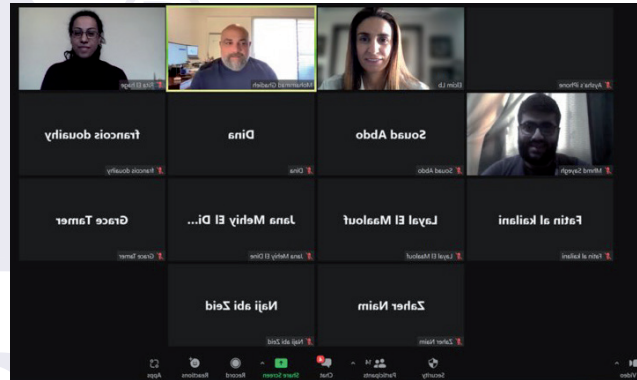
how to better assess the dairy sector needs and explore actions to be introduced in innovative technologies (ICT, Nano / Bio-technologies) to enhance the sector productivity.



## SECOND DAIRYTECH OPEN DAY EXPLORING THE MOST PRESSING CHALLENGES OF THE DAIRY INDUSTRY

Berytech and ELCIM at Industrial Research Institute organized the second DairyTech Open Day, an online event engaging participants and stakeholders to co-create the future, explore business opportunities and respond to the most pressing challenges of the Dairy Value Chain (DVC). This was held in parallel with similar events that will be held within the regional partners' countries: Tunisia, Greece and Italy. Participants were given the opportunity to attend workshops and panel discussions, book one-on-one meetings and listen to inspirational talks from successful people in the industry. The online event also hosted entrepreneurs and startups who showcased to the public their innovative solutions in the dairy industry. The DairyTech Open Day was the second in

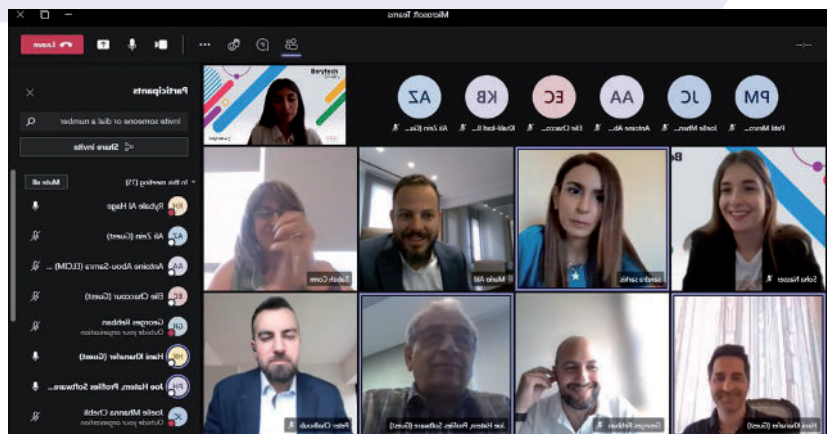
an upcoming series of Living Labs Open Days organized as part of the TRANSDAIRY Living Lab activities and aiming at bringing together experts, farmers, researchers, business actors and startups to discuss and demonstrate the most promising Key Enabling Technologies (KET) within the DVC.



## THIRD VIRTUAL FOCUS GROUP

In the context of the TRANSDAIRY project, ELCIM at the Industrial Research Institute in partnership with Berytech organized on the 6th of May, 2021 the third virtual focus group. This event gathered 9 experts and representatives of leading IT companies in Lebanon to identify and discuss relevant solutions to challenges faced across the different stages of the dairy value chain (DVC). After a presentation of the TRANSDAIRY project, its objectives and activities, an open discussion with the attendees was carried out. The discussion focused on potential and innovative IT solutions to solve

challenges identified at each of the Dairy Value Chain stages, namely the supply and production, processing, quality control, packaging, storage, distribution and export as well as marketing and communications

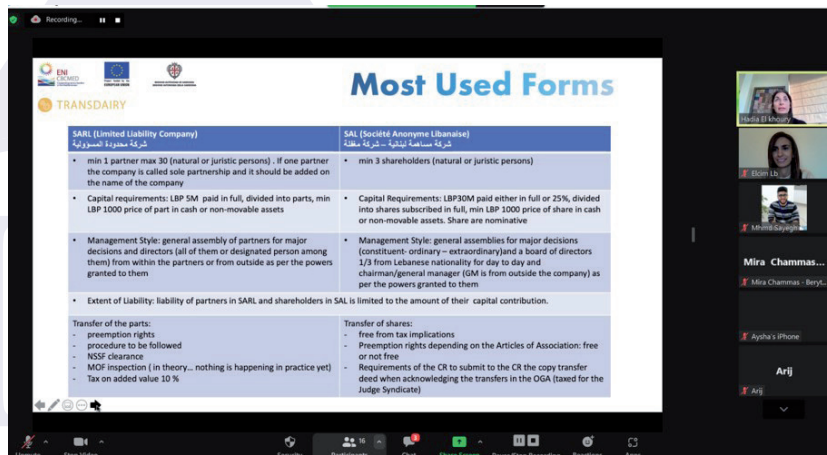
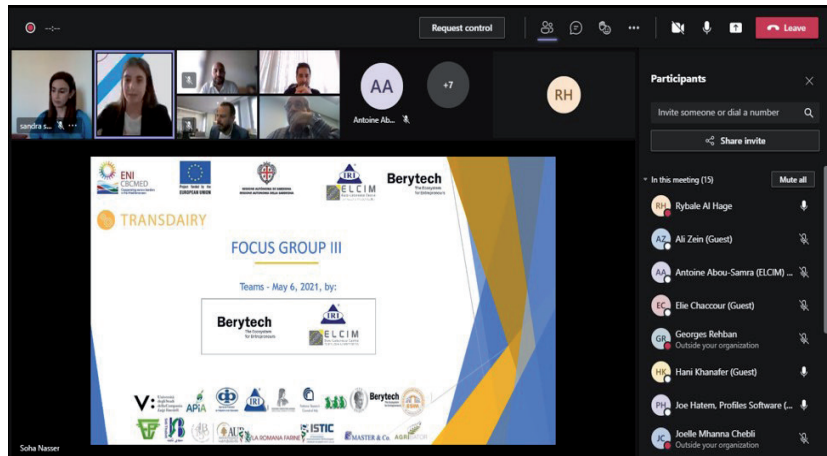


## TRAINING ACTIVITIES

As part of the Transdairy Living Lab activities, a series of Entrepreneurship Training Sessions were implemented aiming at building capacity for innovators, entrepreneurs and key enabling technology providers (KET) within the Dairy ValueChain sector.

Two training sessions were already implemented by ELCIM and Bertytech from a total of 4 to be delivered in the course of the project. Each training session gathered around 20 entrepreneurs and researchers. The topics covered:

- Entrepreneurship and innovation ;
- Spin off creation
- Social entrepreneurship
- Market validation
- Developing business models
- Intellectual property rights
- Commercial agreements
- Access to finance
- Prototyping for the ICT, and experimental planning for the Bio/Nano
- ICT From Lab Technology to product or service-
- Bio-nanotechnology From Lab to Product/ Service
- Safety and security in the DVC
- EU regulations and National regulations for food safety
- Food Product Marking



## EMPHASIS A NEW PROJECT SUPPORTING SMES

EMPHASIS Capitalisation Project will support SMEs through education, research, technological development and innovation.

ELCIM is happy to add EMPHASIS (Euro-Mediterranean Network Facilitating Market Uptake of Innovations from SMEs) to its list of cooperation projects. Set in the framework of ENI CBC Med Program, its main goal is to facilitate the market uptake of innovations from SMEs by fostering their access to research, partnerships and innovation systems at the Euro Mediterranean Region.

Specific objectives include:

- Designing and setting up an Open Innovation (OI) system that offers integrated innovation support services.
- Validating OI opportunities and increasing the capacities of SMEs to innovate.
- Fostering cross-border partnerships and boosting engagement among innovation partners to turn external knowledge and sustainability challenges into tangible business opportunities for growth.
- Engaging policy makers and stakeholders to build a vibrant community of OI actors.

design and methodologies for the Innovation Open call for innovative SME's.

### Opening meeting

On 7-8th of September 2021, ELCIM/ IRI participated in the kick off meeting of the EMPHASIS project in the presence of the EMPHASIS Project Partners (Jordan University of Science and Technology, Association of the Mediterranean Chambers of Commerce and Industry, Confederation of Egyptian European Business Associations, Science and Technology Park of Sicily), the representative of the Joint Technical Secretariat (JTS) of the ENI CBC MED Program and the Coordinator of Eastern Mediterranean Office (Aqaba Branch Office).

The meeting was an opportunity to set the project milestones and present the different working packages.

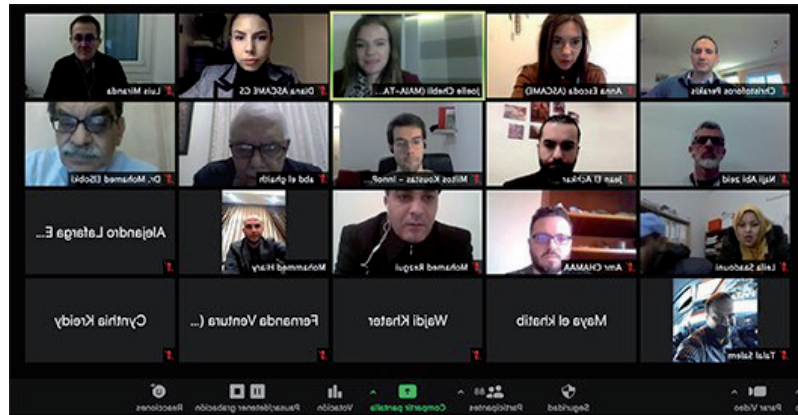
The project has a total budget of €818,689.39 – 90% of which is funded directly by the European Union – and it will last two years. ELCIM will contribute with its expertise in facilitating cooperation activities, as well as setting the



## MISCELLANEOUS ACTIVITIES

### 19/1/2021 Renewable Energy Applications for Organic Agriculture

Participating via zoom platform in the “Renewable Energy Applications for Organic Agriculture” cross border webinar to demonstrate the value of synergy between agriculture and energy application



### 16/2/2021

Scientific Committee meeting gathering representatives from all project partners. On the agenda : mapping activities, discussing upcoming events and brainstorming ideas in relation to the implementation of the training sessions to enhance the technical and management capacities of local SMEs in” Resource efficiency services (consulting, engineering and operations) in the Mediterranean Area



### 25/3/2021

A Cluster meeting was organized by the Joint Technical Secretariats (JTS) of the ENI CBC Med Program on the 23rd and the 24th of March, 2021 where each EU project representative presented the objectives and activities of his project. The meeting included also group projects brainstorming sessions in order to identify potential synergy among projects, in order to maximize the social, economic and development impact of each project and build trust through collaboration and co-creation.





**ACTIVITIES OF  
THE LEBANESE CLEANER  
PRODUCTION CENTER -  
LCPC**



## LEBANESE RESOURCE EFFICIENT AND CLEANER PRODUCTION

### NCPCs

National Cleaner Production Centers (NCPCs) have become a major source of expertise and advice on cleaner production in their respective countries. To date, 42 NCPCs have been created within the context of the NCPC Programme established jointly by UNIDO and UNEP. In parallel, more than 100 CPCs have been created through bilateral, governmental, and other forms of assistance.

There is now an extensive network of cleaner production-related institutions capable of delivering cleaner production at the local and



**RECNet**

national levels, and it is envisaged that this network will be enriched through the addition of more (new) Centers.

### The Concept of Cleaner Production

All businesses use resources of one kind or another to produce products and deliver services for meeting needs of other businesses and / or communities. In this process, some resources remain unspent, or unwanted products get produced as waste because 100% conversion or transfer of resources is seldom possible. This waste when discharged to the environment causes pollution.

1. By ignoring the problem.

This always leads to maximum damage to the environment.

This damage is not limited only to the local-scale or neighborhood; it can occur at the regional and in some cases even the global

scales.

2. By prescribing to the doctrine “the solution to pollution is dilution”; i.e. by diluting or dispersing pollution so that its effects are less harmful or apparent.

3. By trying to treat pollution through the so-called end-of-pipe approach.

4. Through the prevention of pollution and waste generation at the source itself.



### The Role of Technological Change in Green Growth

By reducing the costs of environmental protection, technological change is important for promoting green growth. This entails both the creation of new technologies and more widespread deployment of existing green technologies. This paper reviews the literature on environmentally

friendly technological change, with a focus on lessons relevant to developing countries. It begins with a discussion of the data available for measuring the various steps of technological change. It continues with a discussion of sources of environmental innovation. Given that most

innovation is concentrated in a few rich countries, this leads to a discussion of the remaining role for lower-income countries, followed by a discussion of technology transfer. Because of the importance of market failures, the paper discusses the role

of both technology policy and environmental policy for promoting environmentally friendly technological change. The review concludes with a discussion of what environmental economists can learn from other fields.

## LCPC PARTICIPATIONS:

### FREE WEBINAR- Resource Efficiency & Sustainable Consumption



### Sustainable Consumption and Production: An operational approach to sustainability

Sustainable Consumption and Production (SCP) aims to minimize the negative environmental impacts from consumption and production systems, considering all stages of the life-cycle of products and services while promoting quality of life for all. It is a broad framework that encompasses many operational solutions that are key for designing and implementing policies and measures to achieve economic, social and environmental sustainability. These solutions include, but are not limited to: supply chain management, waste management and re-use, resource efficiency along the value chain, cleaner production, life-cycle thinking, eco-innovation and eco-labelling. Some of which are demonstrated in the figure below. UN Environment suggests four key SCP principles as a guiding framework for analysis and policy action:

1. Improving the quality of life without increasing environmental degradation and

without compromising the resource needs of future generations.

2. Decoupling economic growth from environmental degradation by:
  - Reducing material/energy intensity of current economic activities and reducing emissions and waste from extraction, production, consumption and disposal;
  - Promoting a shift of consumption patterns towards groups of goods and services with lower energy and material intensity without compromising quality of life.
3. Applying life-cycle thinking which considers the impacts from all life-cycle stages of the production and consumption process.
4. Guarding against the re-bounce effect, where efficiency gains are cancelled out by resulting in increased consumption.

## FOOD WASTE PREVENTION CONFERENCE

The conference will discuss the issues of advancing green technologies and science policy interface throughout five sessions with special emphasis on food waste, energy and biomass in the form of presentations from experts.

The last few years, a lot of measures addressing food waste have been proposed and implemented. Recent literature reviews call for more evidence on the effectiveness or food waste reduction potential of these measures. Furthermore, very few information is available on the extent to which food waste measures have been evaluated based on their economic, environmental and social performance. This review closes this knowledge gap by looking at the methodologies currently used in literature to evaluate food waste prevention measures, using a pre-defined assessment framework with quantitative evaluation criteria. In total, evaluations were examined for 25 implemented measures with measured outcomes and 23 proposed measures with projected outcomes. The paper concludes

that there is a great variety in how an evaluation is performed. Additionally, in many cases, economic, environmental, or social assessments are incomplete or missing, and efficiency is only seldom calculated. This is particularly true for implemented measures whereas proposed measures with projected outcomes tend to have a more thorough evaluation. This hampers practitioners and decision-makers to see which measures have worked in the past, and which ones to prioritize in the future. Moreover, more complete information on the effectiveness and efficiency of measures would make incentives for reducing food waste at various levels along the food chain more visible. At European level, work is ongoing on the development of a reporting framework to evaluate food waste actions. This conference complements these efforts by providing an overview of the current gaps in evaluation methodologies found in literature regarding food waste prevention measures within EU and beyond.

### CONFERENCE SPEAKERS



Mrs. Carolina Gonzalez  
"Resource Efficiency in Industries"



Mr. Luc Reuter  
"Sustainable Consumption and Production "SDG-12"



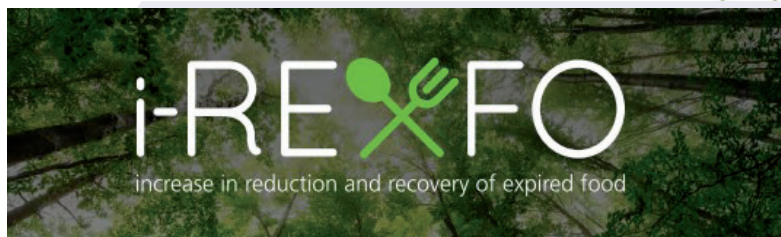
Dr. Ali M. Yaacoub  
"Cleaner Production Methodology"



Mr. Morten E. Gyllenberg  
"Actualization & Classification of energy and carbon potentials"



Ms. Sofie Skovrup  
"Denmark paving the way towards minimizing food waste"



### CONFERENCE SESSIONS

The conference will discuss the issues of advancing green technologies and science policy interface throughout five sessions with special emphasis on food waste, energy and biomass in the form of presentations from experts.

## LCPC ACTIVITIES TILL THE END OF 2021

### *LCPC activities till the end of 2021*





**IRI COOPERATION  
WITH  
THE PUBLIC SECTOR**

## RELATION WITH THE PUBLIC SECTOR

The Institute acts on behalf of the Lebanese government and is authorized by it, to approve negotiations, sign agreements for mutual recognition of certificates of conformity in the trade exchange between Lebanon and other countries.

The Institute was tasked with the issuing of certificates of conformity in the importation of industrial goods, pursuant to the Lebanese decrees of mandatory specifications, and also in exportation operations in accordance with the specifications of the destination countries.

It should be mentioned here that since 2004, IRI has been the only internationally accredited body in Lebanon, as per the international accreditation certificate DINENISO/IEC 17025. Consequently, the Institute is the only window available for the flow of Lebanese goods, which need laboratory tests and certificates of conformity, to the European and international markets.

### Parliament

IRI regularly accepts the invitations of parliamentary committees in the Lebanese parliament, and attends meetings held by them. IRI offers its technical and scientific expertise related to the Institute's scope of work to these committees during the drafting and discussion of bills.

IRI actively participated in the drafting and discussion of the bill on technical regulations and pertinent procedures for conformity assessment, in all stages of the process, with the subcommittee of the joint parliamentary committees, until the bill was approved by this committee at the end of September, 2011. IRI participated in the drafting of the bill regulating drinking water processing, treatment and packaging, with the Committee on Public Health, Labor and Social Affairs.

The bill aims to limit the unregulated and exploding number of drinking water distribution

companies in Lebanon, as a result of the growing need of the citizens for water that is otherwise unavailable through public drinking water grids. The bill seeks to subject most unlicensed bottling companies to the laws and regulations in force, in order to ensure the safety of water, that it is uncontaminated, and that it complies with the required specifications to preserve public health. IRI also participated in the activities of the Public Works and Energy Committee in several areas, including:

- Following up the process of replacing domestic gas bottles, especially the control of the production and exportation of gas bottles before they are used in local markets.
- Providing the necessary expertise and technical analysis related to fuels allowed in private cars.
- Offering opinion and technical analysis related to bills concerning public safety in the use of fuel tanks, with a view to prevent explosion.
- Expressing an opinion about the draft food safety law.
- Expressing an opinion about the draft law on electronic transactions and data of a personal nature

### Ministry of Industry

IRI is considered to be the quintessential technical arm of the Lebanese Ministry of Industry, especially as IRI is a subsidiary body of the ministry, and that its Board of Directors is headed by his Excellency the Minister of Industry. IRI is continuously conducting the necessary industrial inspections and studies, as well as feasibility studies aimed at developing existing industries or establishing new ones. This is in addition to conducting studies on the added value of national industrial products and the need for certificates

of origin for export clearance. Also, the Institute worked in parallel with the ministry in granting industrial licenses, pursuant to decree No. 8018 dated 20/6/2002, which assigned the required role for IRI in this regard, and is still working in parallel with the ministry whenever it is required to do so.

### **Ministry of Agriculture**

The Ministry of Agriculture requests IRI to analyze samples from agricultural products or material on a frequent basis. These are usually sent to IRI by the ministry for testing, whether upon importing them, exporting them or their usage. IRI is also tasked with the analysis of fertilizers and pesticide residues in vegetables, fruits and other crops.

### **Ministry of Economy and Trade**

Since its inception, IRI has been cooperating with the Ministry of Economy and Trade, especially the Consumer Protection Directorate and the General Directorate of Cereals and Sugar beets.

A- Consumer Protection Directorate This directorate is tasked with taking samples from local markets on a regular and ongoing basis, and handing them over to IRI for laboratory testing and issuance of the necessary reports, across various sectors. IRI comprises 14 accredited laboratories covering different sectors, in addition to a control and inspection unit, the meteorological calibration unit and the Lebanese Welding Centre.

B- General directorate of Cereals and Sugar beets The Industrial Research Institute manages and operates the work of the central laboratory for grains, flour and bread research on behalf of the Ministry of Economy and Trade. The laboratory is equipped in accordance with highly specialized international cereal laboratories. The

laboratory meets all the needs of this directorate by controlling the quality of the imported and the locally produced wheat and wheat products (briefly, monitoring the ingredients that make up the Lebanese bread loaf).

### **Ministry of Public Health**

IRI laboratories are used by the Ministry of Public Health in conducting special tests on bottled water, as a fundamental step in the process of obtaining a license for the water bottling companies, in addition to other tests conducted by the instituted which include, for example, baby formula, cosmetics, medicine and other items as needed.

The ongoing regulatory campaign launched by the Ministry of Public Health during 2014, required a continuous coordination with the Ministry which was and still sending a large number of samples daily so that the IRI conduct necessary tests and provide technical advice.

In its laboratories, the Institute conducted analysis and tests for thousands of samples brought by the Ministry of Health monitors, and results were given within the required time period, sometimes immediately. The Institute was not surprised by the unprecedented quantity and quality of samples brought by the Ministry of Health monitors.

### **Ministry of National Defense**

The cooperation with the Lebanese army, including its various interests and divisions, has been firmly established since IRI's inception. IRI meets the requests of the committee tasked with the receipt of the analyzed materials and the central reserve committee for foodstuff analyses, the stewardship for uniforms and equipment, in addition to the requests of the corps of engineers, the logistical corps and the military police and other corps as needed. IRI also holds training courses on welding works, solar energy and other scientific topics which IRI proudly provides to

this institution.

### **Ministry of Interior and Municipalities**

The Textile, Leather and Rubber Laboratory at IRI is continuously cooperating with the security in analyzing the uniforms of the Internal Security Forces, as well as shoes and equipment, in accordance with their requirements and in order to certify the conformity of these specimens with the specifications established by them, prior to purchasing uniforms and gear.

IRI meets the various requests by the Internal Security Forces in different unmentioned sectors, including for example chemical analyses to identify contraband and other security-related analyses.

### **Ministry of Energy and Water**

IRI works with the Ministry of Energy and Water in different areas, most importantly overseeing the manufacturing of gas bottles and certifying that they conform to the mandatory Lebanese standards. IRI also inspects gasoline tanks in petrol stations, whether for licensing purposes or for maintenance when requested.

In addition, IRI inspects the nominal load of fuel tankers, in addition to other inspections that are conducted at the behest of the ministry.

IRI also conducts studies and offers technical consultation in national issues when requested, issues that fall under the scope of both the ministry's work and IRI's fields of expertise.

### **Ministry of Environment**

IRI continually cooperates with the requests of the Ministry of Environment, whether by analyzing samples to assess their negative environmental impact, or whether by providing the Ministry of Environment with its services in the field of the inspection and auditing of factories, before suggesting the optimal approach in the production process in order to mitigate the latter's negative environmental impact.

IRI also hosts the Lebanese Cleaner Production

Centre (LCPC), which was established as a result of the cooperation among the Ministry of Industry, the Ministry of Environment, UNIDO and Austria.

This centre's main objectives include ensuring compliance with environmental standards during the different stages of production, something that is beneficial in terms of reducing costs by keeping waste in check on the one hand, and improving the environment by recycling wherever possible during the production process on the other hand.

### **Ministry of Justice**

The judicial authorities continuously refer legal issues to IRI for technical advice, as IRI is the reference point for these authorities in what pertains to scientific issues.

### **Ministry of Foreign Affairs and Emigrants**

Within the framework of cooperation and coordination among organizations involved in supporting Lebanon's exports abroad, the Financial and Administrative Director, Mr. Selim Kfoury, and the Applied Research and Testing Director, Dr. Joseph Matta represented the Industrial Research Institute in the meetings held virtually, organized by the Ministry of Foreign Affairs and Emigrants with concerned ministries and agencies and economic attachés in certain countries, and representatives of these countries including, Jordan, the United Arab Emirates, Canada, the European Union and others in an effort to overcome barriers and increase the volume of our exports to these countries.

### **Customs**

Collaboration with the Lebanese customs is mainly done in the fields of enforcing and verification of conformity with the mandatory specifications required for goods imported to Lebanon, and which are subject to customs restrictions. This is done according to a specific



and known mechanism. The Customs authorities, according to the customary procedure, can send samples to IRI for analysis and for identification of their components, prior to clearing them for entry into the local markets.

### **Lebanese Standards Institution (LIBNOR)**

IRI worked diligently to establish the Lebanese Standards Institution (LIBNOR), which is tasked with issuing the Lebanese standards. In the beginning, this institution was established in the campus of IRI, which incubated its operations until it was reactivated in 1998. Since then, IRI published approximately one thousand national standards for the institution, as per annual contracts that were in force from 1998 until 2004. IRI is currently represented in the institution's Board of Directors, while IRI is permanently represented in the technical committees tasked with issuing and updating the national standards.

### **The Lebanese Council for Accreditation (Colibac)**

Some time ago, IRI realized that the infrastructure of a world-class quality process must include the following items:

Bodies for conformity assessment that implement these specifications. This role is primarily assumed by IRI in Lebanon, not only in the application of national standards, but also in the application of international standards in export operations as IRI is internationally accredited according to ISO Certificates No. 17020 and 17025.

A national institution for the issuance of national standards, which in Lebanon is the Lebanese Standards Institution (LIBNOR), a body that is ever striving to improve its role.

Oversight of the local market. This function is tasked to the Consumer Protection Directorate at the Ministry of Economy and Commerce .

A national council for accreditation, whose tasks include accrediting laboratories, monitoring

commissions, conformity assessment for products and processes in the country. This national institution was not yet established in Lebanon, and IRI sought hard to establish it in order to complete the quality infrastructure at the level of national institutions, until the decree of its establishment was issued in 2004, while the decree to establish its Board of Directors was issued in 2006. IRI is represented in the Board of Directors of the Lebanese Council for Accreditation (Colibac).

This council is still in the process of drafting its bylaws, which are nearing completion. Work is also underway to speed up the passing of the necessary legislations that will enable the council to start its operations and serve the purpose it was created for.



# **IRI RELATIONS WITH THE PRIVATE SECTOR**

## IRI'S RELATIONS WITH THE PRIVATE SECTOR

### Industrialists

IRI allots great importance to industrialists and industry in Lebanon. Thirteen years ago, IRI concluded an agreement with the Association of Lebanese Industrialists whereby it granted industrialists a fifty percent discount on the costs of all laboratory analyses, in accordance with the list adopted by IRI. The services provided by IRI to the industrialists are as follows:

#### **A- Analysis requests with the aim of improving**

The quality of production or finding solutions to production problems. Any industrialist can head to IRI to request an analysis of a product produced in his factory with the aim of improving its quality, or as a result of a particular problem he is facing during production. At that point, cooperation and follow-up begin with the industrialist.

In most instances, his request becomes a process of applied research with which these analyses either end up in improving the quality of the product or determining the underlying cause of the production problem and subsequently, working on solving this problem.

#### **B – Pre-export Analysis**

There are many products that cannot be exported to foreign markets without first being analyzed. As IRI is internationally accredited pursuant to ISO certificates No. 17020 and 17025, its accreditation is recognized by more than 120 countries, rendering it virtually the sole window through which Lebanese goods that comply with technical specifications can flow into the European and global markets, owing to the certificate of conformity issued by IRI.

Therefore, industrialists head to IRI to conduct the analyses required by the destination

countries, in order to obtain certificates of conformity for their products which would give them access to international markets.

#### **C – Product Certification**

This is an optional program that any factory that meets the conditions can request, for implementation in its facilities according to a contract with IRI and a specific mechanism at the latter; this would enable the factory to obtain IRI's conformity mark for its products, in an ongoing and continuous manner. IRI would oversee production through periodical analyses and inspections, before granting the factory certificates of conformity whether for export purposes or for ensuring the conformity of its products to national standards. This takes place in a routine manner, and also on demand, and its cost is factored in into that of the program.

### Merchants

There are goods that are subject to mandatory national standards. For this reason, importing such goods is subject to customs restrictions that stipulate their conformity to the mandatory national standards. This is verified by IRI prior to allowing these goods into domestic consumer markets.

Hence, the relation between the importers and merchants on one hand, and IRI on the other hand is constantly evolving. Efforts are underway, on a continuous basis, to facilitate trade exchange on one hand, and to verify the conformity of imported goods following a scientific method on the other hand.

Many merchants voluntarily head to IRI to request tests and analyses of their merchandise and products, in order to determine their conformity

with international standards in the case of export, or national standards in case of import, prior to shipping it from the country of origin.

### Farmers

IRI's laboratories continuously cooperate with farmers. In truth, many farms voluntarily head to IRI and request their products to be analyzed.

IRI provides analysis for farmers for the following products:

- Olive oil
- Honey
- Vegetables and fruits (pesticide residue)
- Irrigation water
- Meat and fish
- Other agro-food products.

### Researchers and scientists

Many researchers and scientists head to IRI to conduct tests and analyses necessary for their scientific research. Most of the time, their requests become applied research projects, as they are aware of IRI's capabilities in this area. This is not to mention the fact that IRI houses 14 laboratories spanning many complementary disciplines, in addition to the meteorology laboratory, the Lebanese Welding Centre, the Euro-Lebanese Centre for Industrial Modernization, the Lebanese Cleaner Production Centre, and the Centre for Innovation & Technology.

### Consumers

The relationship between consumers and IRI is either direct or indirect, through the civil organizations and associations concerned with consumer protection, the environment and other fields.

#### Direct relationship

Any citizen can go in person to IRI in order to

test any product, substance or other items, which is what is often done by citizens to ascertain the safety of what they consume, be it drink, food, supplies, household electric appliances, building materials, petroleum products and other daily items.

#### Indirect relationship

Consumer protection associations and other civil organizations often head to IRI and request analyses and tests of an environmental or health safety nature. Cooperation with these organizations is done on a continuous basis by IRI, which meets all the former's requests in return for special fees that take into account their conditions in most cases. If these requests were not complimentary, then they would be symbolic, in a bid by IRI to support and encourage these groups to work for the public good.



# **DEVELOPMENT OF HUMAN RESOURCES**

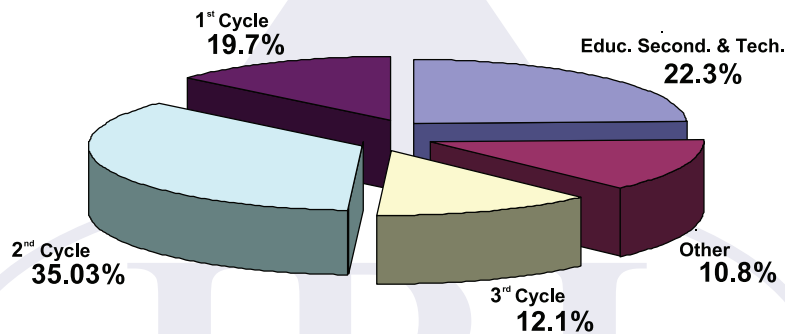
## DEVELOPMENT OF HUMAN RESOURCES

The number of IRI staff members amounted to 157 at the end of 2021; 66% are males, while 34% are females.

The average age is around 39 years.

They can be categorized according to the level of their education:

- 19 hold a 3rd Cycle
- 55 hold a 2nd Cycle
- 31 hold a 1st Cycle
- 35 are in their secondary and technical studies
- 17 are in other categories.



Elementary Levels	No.	%
3rd Cycle	19	12.1
2nd Cycle	55	35
1st Cycle	31	19.7
Secondary Education & Tech	35	22.3
Other *	17	10.8

Average Age	Gender	
39 Years	66% Male	34% Female

(\* ) other excluded

Average Age	Gender	
39 Years	65% Male	35% Female



# **ON-GOING EMPLOYEE TRAINING**

## Local Training, Seminars & Workshops

Participant	Organizer	Object/Title	Date	Location
Carine Slaiby	معهد باسل فليحان المالي والاقتصادي	الاجتماع السنوي الخاص بمنسقي التدريب في القطاع العام	10/02/2021	Online
Bilal Houssein	USAID	Renewable Electricity Supply Co-Creation	01-03/03/2021	Online
Mohamad Assaad El Hajjar	L'Association Libanaise pour la Maîtrise de l'Energie et pour l'Environnement, ALMEE et l'Agence de l'Environnement et de la Maîtrise de l'Energie, ADEME, France	Indicateurs d'Efficacité Energétique	02/03/2021	Online
Robert Haddad	LMQ - IMF	Introduction to PT	07/04/2021	Online
Halim El Bayeh	USAID/CSP - Association of Lebanese Industries, ALI	Industrial Wastewater Treatment (IWT)	08/04/2021	Online
Stephanie Al Asmar	معهد باسل فليحان المالي والاقتصادي	Le parcours modulaire mixte en ingénierie de formation	17/03-03/05/2021	Online
Elie Melky Edgar Shaaya	PTB	Quality Infrastructure for the Promotion of Trade and Consumer Protection in the Middle East	27/05-03/06/2021	Online
Sandra Sarkis	AIDSMO	الاتار الاقتصادية والصناعية لتطبيقات الذكاء الاصطناعي في الدول العربية	24/08-31/08/2021	Online
Michael Abi Fadel	مجلس الانماء والاعمار	اجراء تجربة علمية لمعالجة النفايات العضوية		Coral Industry – Beirut
Joseph Matta Siham Youssef Halim El Bayeh	IRI - ELCIM - SMDC	Get your products certified	02/06/2021	Online
Fadi Melhem Mohamad Assaad El Hajjar	LCEC - Ministry of Energy and Water - World Energy Council	Re-Connect with LCEC: Overview of LCEC's Programs and Initiatives	10/06/2021	Lancaster Tamar Hotel - Hazmieh
Joseph Matta	الهيئة البرلمانية لمتابعة تنفيذ أهداف التنمية المستدامة	حق النساء والفتيات بالحصول على المنتجات الصحية الخاصة بهن والبحث في إمكانية وضع خطة عمل لتأمين الموارد الضرورية لذلك على المدى القريب والبعيد	17/06/2021	مجلس النواب - بيروت
Tarek Hakim	AIDSMO	إدارة السلامة والصحة المهنية في قطاع التعدين	17/06/2021	Online
Joseph Matta	Embassy of Lebanon in Belgium	Horizon Europe info-days	28/07/2021	Online
Siham Youssef Amanie Gerges Petra Youssef	IRI - ELCIM	Develop a Food Safety Plan	07/07/2021	Online
Joseph Matta	FAO Lebanon	Water Governance Training	07-08/07/2021	Online
Imad Hage Chehadeh Dany Tahchy Hovig Kouyoumdjian	AB Certification	Activité médicale de AB Certification	08/07/2021	Online
Dany Tahchy	AIDSMO	اللوائح الفنية الإلزامية	25/10/2021	Online



Participant	Organizer	Object/Title	Date	Location
Elias Maalouf Edgar Shaaya Joseph El Helou Alaa Ahmad	AIDSMO	تعزيز وبناء القدرات الفنية لدى معاهد وأجهزة المترولوجيا في الدول العربية	11,17/11/2021 15-16,18/11/2021 9,22,25,1/11/2021 15,25/11/2021	Online
Joseph Matta Halim El Bayeh	Embassy of Lebanon Ottawa	ورشة عمل افتراضية عن المعايير الكندية لاستيراد المواد الغذائية	02/12/2021	Online

## LIBNOR

Participant	TC Number	Standard Title	Date
Wadad Daher	TC 1032 الشوكولا ومسحوق الكاكاو وزينة الكاكاو	NL 208: 1999	25/06/2019 07/01/2021
Tarek Hakim	TC 44 Welding and Allied Processes	ISO 18272 – ISO 17672 – ISO 13585 – ISO 14112	24/02/2021
Halim El Bayeh	NL TC 1008 Food Addictives	NL 761: 2016	02/10/2018 02/03/2021
HaithamChawa	NL TC 2207 Furniture	EN 13150 – NL EN 1022	07/04/2021
Ahmad Hassan	NL TC 3018 HVAC	ISO 13349 – ISO 13351 – EN 16147 – EN 14825 – EN 14886 – EN 15727 – EN 15780 – EN 15218 – EN 15423 – EN 12178 – EN 12284 – EN 1216 + A1 – EN 1148 + A1	20/04/2019 12/04/2021
Mark Tahchy	TC 59 - Construction	CEN / TR 15226 – EN 13459 – EN 1063 – NL ISO 15928-3/4/5	22/07/2020 04/03/2021
Mark Tahchy	NL TC 59 - Building Construction	EN 15275 – EN 413/1 – EN 12414 – NL EN 520 – EN 1051-1/2 – EN 15254-2 – EN 13914-2 – EN 13279-2 – ISO 15928-1-2 – EN 1096-1 – EN 12758 – NL EN 1304 – CEN/TR 15124 – EN 15254-4 – EN 490 – EN 13198 – EN 16477-1 – CEN HR 15226 – NL EN 13459	19/12/2018 06/04/2021
Ahmad Habli	TC 22 - Road vehicules	ISO 3780 + Cor 1, ISO 3779, ISO 4030, ISO 5422, ISO 8720, ISO 11530	23/06/2021
Elias Dib Mark Tahchy	NL TC 17	EN 10079 – EN 10111 – EN 10024 – EN 10028-1 – EN 10060 – EN 10027/1/2 – EN 10025-1/2/3/4/5/6 – EN 10219-1/2 – EN 10168 – EN 1002 – EN 10059 – EN 10024 – EN 10058 – EN 10056-1/2 – EN 10055 – EN 10048 – EN 10034 – EN 10061 – EN 10140 – EN 10306 – EN 10308 – EN 10132-1/2/3/4 – EN 10162 – EN 10346 – EN 10268 – EN 10130 – EN 10131 – EN 10139	02/02/2017 02/02/2017 25/06/2021
Tarek Hakim	TC 44 Welding and Allied Process	ISO 15012-1/2/4/5 – ISO 3821	01/07/2021
Dany Frenn	NL TC 104 - "Freight Containers"	ISO 668 – ISO 668/Amd1/Amd2 – ISO 830 – ISO 830 + Cor1 – ISO 1496-4/6/5 – ISO 3874 – ISO 14829 – ISO 15069 – ISO 15070 – ISO 10368 – ISO 9669 – ISO 6346 – ISO 9711-1 – ISO 9893	11/10/2018 12/07/2021
Michael Abi Fadel	TC 146 Air Quality	CEN/TS 17286, EN 13211, EN 14789, EN 14792, ISO 10849	18/06/2021 16/07/2021
TaherWehbe	TC 11 Boilers and Pressure Vessels	EN 1252-2 - ISO 21028-1 - NL EN 267 - NL EN 676 - NL pr EN 12953-1/2/3/4/5/6/7/8/9/10/11/12/13 - EN 12952-1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 - EN 13445-1+A1+A2 - EN 13445-2+A1+A2 - EN 13445-3+A1+A2+A3+A4+A5+A6	01/03/2018 28/07/2021

Participant	TC Number	Standard Title	Date
Elias Bechara	NL TC 207 البيئة Environmental Management	ISO 14052 - ISO/TR 14073 - ISO 14067 - ISO 14021 - ISO/TS 14033 - ISO 14045 - ISO 14049 - ISO/TS 21929-2 - ISO/TR 21932 - ISO 17741 - ISO 17742 - ISO 17743 - ISO 16745 - ISO/IEC 13273 - ISO 50015 - ISO 50047	29/01/2019 31/08/2021
Elias Bechara	TC 207 Environmental Management	ISO 14026 - ISO 14027 - ISO 14055-1	19/10/2021
TaherWehbe	TC 11 Boilers and Pressure Vessels	EN 13445-1/2/3/4/5	07/09/2021 13/10/2021
Tarek Hakim	Welding and Process TC 44	ISO 21904-1-2,3,4 - ISO/TR 20172	28/10/2021
Hovig Kouyoumdjian Lama AbouRjeily	NL TC 3016 المشروبات الغازية غير الكحولية وبعصير الفاكهة والنكتار	NL 674	01/12/2021 21/12/2021

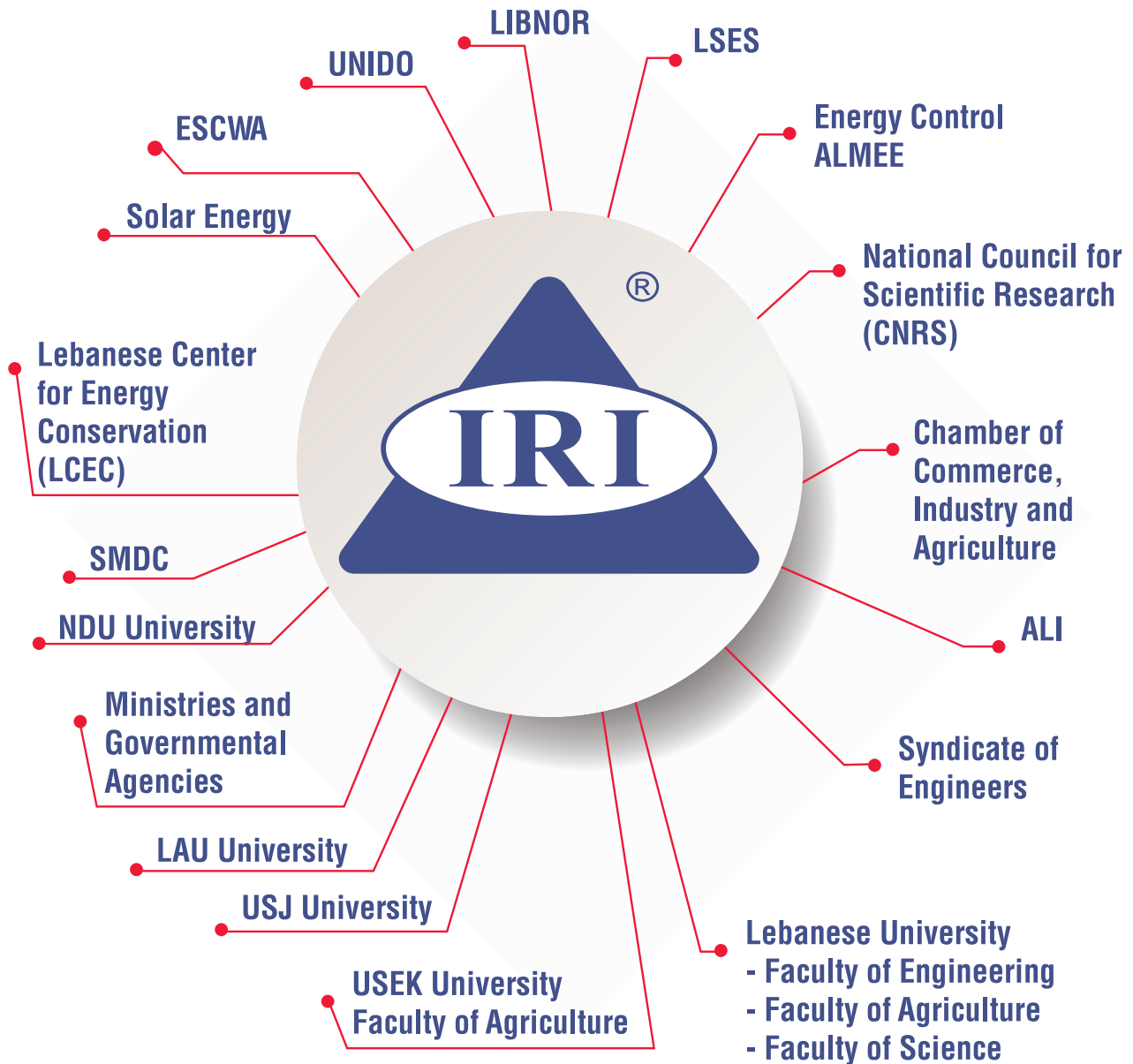
## IRI Seminars / Conferences

Participant	Organizer	Object/Title	Date	Location
Jihad Hajj Chehadeh Ziad Moukarzel Elie Chelala LayalBanna Amira Mcheik Jean-Pierre Samia MahaJarmouch Maria Saliba SelimGermanos Muhi Dine Habli Ali Hamadi Mohamad Abbas Haidar Hassan Haidar WadadDaher Ali Hassan Yaacoub Mohamad Mezzawi JoumanaEid Mahmoud Amhaz RabihIssa Mohamad Haidar Abdel Hassan Nehme Marcelle AbouJaoudeh Nader Aoude Joyce Daher LayalYatim Renée Chamoun Youssef Andraous HovigKouyoumdjian Perla Hanna Imad Kahil Mohamad Bezri Mahmoud Chamieh RaymondeKhazzaka Halim El Bayeh CameliaKanaan Lama AbouRjeily Ali Ayoub Elias Maalouf ElianeSawma Mohamad Mcheik	ELCIM / IRI	Lean Manufacturing Awareness Session	12/02/2020	IRI

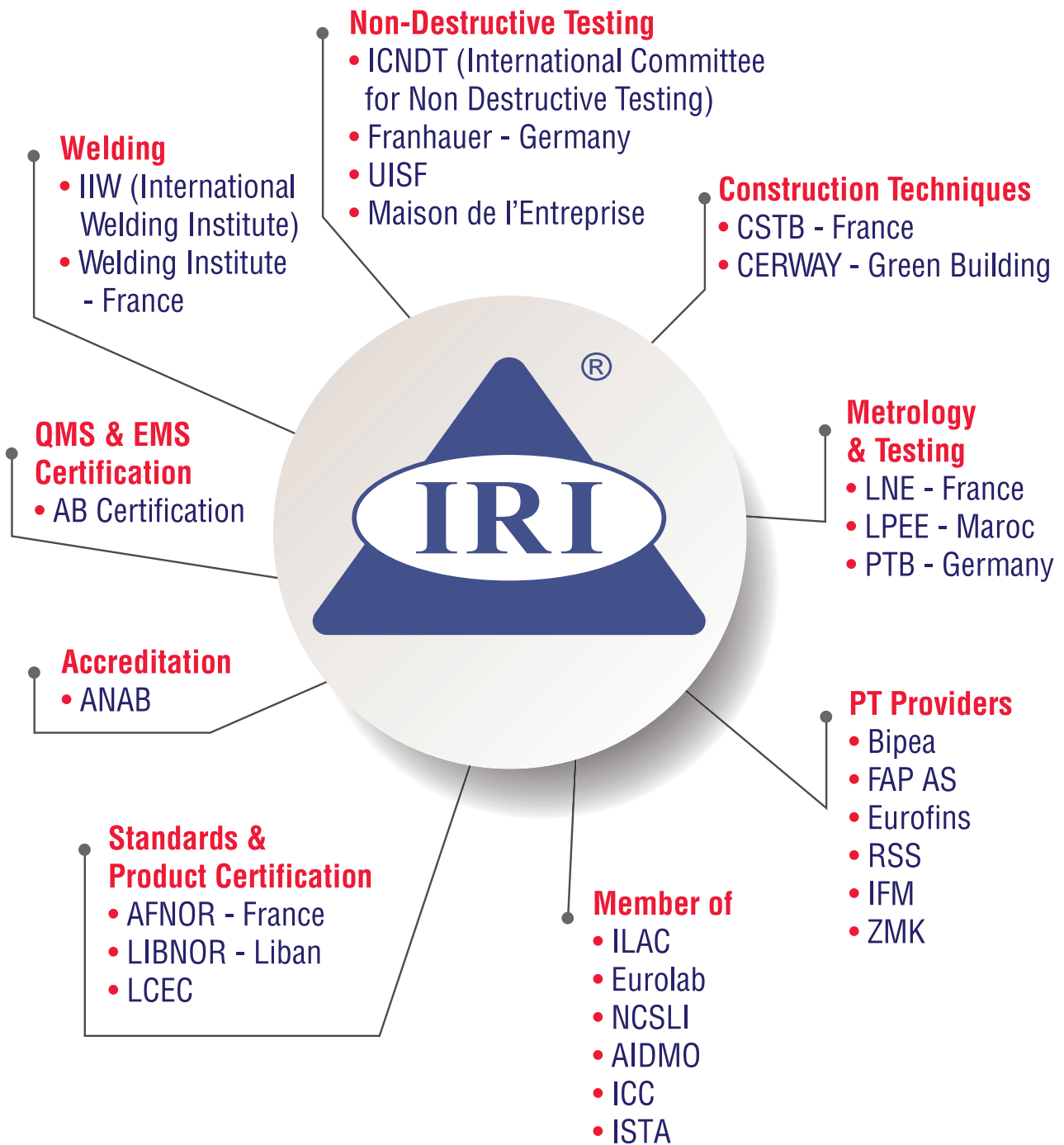


# **INTERNATIONAL AND LOCAL PARTNERSHIPS**

# LOCAL PARTNERS



# INTERNATIONAL PARTNERS





# **DECREES, LAWS AND DECISIONS**

## DECREES

Decree		Official Gazette		Subject	Party
No.	Date	Issue	Date		
8376	10/09/2021	37	16/09/2021	Formation of the Government	President of the Republic
8382	12/10/2021	42	21/10/2021	Appointing deputy ministers in the absence of original ministers	Presidency of the Council of Ministers

## DECISIONS

Decision		Official Gazette		Subject	Party
No.	Date	Issue	Date		
17	20/01/2021	4	28/01/2021	Amending Decision no. 175 dated 15/9/2015 concerning the replacement of metallic gas cylinders (butane / propane) available on the local market	Ministry of Energy and Water
101	11/05/2021	20	20/05/2021	Amending Decision no. 175 dated 15/9/2015 concerning the replacement of metallic gas cylinders (butane / propane) available on the local market	Ministry of Energy and Water
17/1	17/05/2021	20	20/05/2021	Reporting warehouses connected to factories	Ministry of Industry
205/1	23/06/2021	26	01/07/2021	Re-analyzing samples of imports subject to the control of the Ministry of Agriculture	Ministry of Agriculture
20/1	06/07/2021	28	15/07/2021	Submitting applications for preliminary approval of importing dual-use chemicals	Ministry of Industry
201/202	10/09/2021	37	16/09/2021	Circular no. 20/2021 to all public agencies on how to submit files to the presidency of the council of Ministers	Presidency of the Council of Ministers

Decision		Official Gazette		Subject	Party
No.	Date	Issue	Date		
42/1	21/10/2021	43	28/10/2021	Request to all factories operating in Lebanon to submit to the Ministry of Industry the customs HS codes for their products	Ministry of Industry
43/1	21/10/2021	43	28/10/2021	All factories operating in Lebanon using chemicals shall 2 and 1 classified as class employ a chemical engineer or a licensed chemist	Ministry of Industry
74/1	07/12/2021	50	16/12/2021	Request for the approval of the Ministry of Industry on the pro-forma invoice before exporting or importing aluminum products	Ministry of Industry
1519/1				Regulation of the extraction of medical supplies used in dialysis that are subject to a certificate of conformity at the Industrial Research Institute	Ministry of Public Health
1523/1				Regulation of extraction of infant formula subject to testing or certificates of conformity at the Industrial Research Institute from the Customs warehouses	Ministry of Public Health
820/1	23/12/2021	2	13/01/2022	Standards and technical regulations to be respected by Dairy factories	Ministry of Industry
83/1	23/12/2021	2	13/01/2022	The obligation to employ or contract a veterinarian in slaughterhouses	Ministry of Industry
84/1	23/12/2021	2	13/01/2022	Food factories shall abide by good manufacturing practices and Lebanese quality standards	Ministry of Industry





# COMMUNICATION & MEDIA

**MEDIAS**

**Visit of H.E. Minister of Industry George Bouchikian to the Industrial Research Institute  
29-09-2021**



**الجمهورية**

العدد 3098 | الخميس 30 أيلول 2021

**الصناعة: زيادة الصادرات وفتح أسواق جديدة**

جال وزير الصناعة جورج بوشكيان في معهد البحوث الصناعية، ليلية لندوة المدير العام للمعهد بسام القرن، بمشاركة المدير العام للوزارة داني جديون والمديرة العامة لمؤسسة التقنيين والمواصفات اللبنانية ليينور لينا درغام ومديري وكوادر ورؤساء الأقسام والمراكز في المعهد وشغف المختبرات، واستمع إلى شروح تفصيلية عن تجهيزاتها وطرق عملها. بداية أثنى القرن كلمة أكد فيها أنه رغم الظروف الاستثنائية التي مرت في العام 2020، حافظ المعهد على طاقة كوادره المعتادة، وانفتحهم الجيوي وحاسنهم الخبرة، وشعورهم الوطني، وضمهم المسؤول وبالتالي أداء دورهم ككلاً في ضمان الخدمة العامة للمواطنين. ولتت إلى أن مشاريع حركة التجارة الخارجية

انعكس على إحصاءات المبيعات الجبركية، والمخبرات، لكن في الإجمال، بقى مسنون النشاط في معهد البحوث الصناعية، أعلى قياساً مما كان عليه على صعيد القطاعات الاقتصادية كافة. من جهته، قال الوزير بوشكيان، نحن اليوم في خدمة المواطن والصناعات وكل صاحب عمل واضح معهد البحوث الصناعية بمناخه خاصة ورافعة مواكبة لقطاعات الأعمال في لبنان، لذلك، يتعجب الوضع مما جميعاً التضحية في سبيل لبنان، وأكد أن الفرصة موجودة، عسراً إلى أن نوطنا شهد على مراحل أكثر صعوبة في تاريخه القديم والحديث، وشعب اللبناني يريد من نوعه، وتتعلق بأرضه ووطنه وتغلبه، ونحن متممون على بناء لبنان القد معاً، عابث الكلفة الجديدة.

**الذّيبار**

العدد ١١٥٩٩ - الخميس ٣٠ أيلول ٢٠٢١

**جولة لوزير الصناعة على معهد البحوث الصناعية**



بوشكيان والقرن

الوطني والمساهمة في نموه، إلى إدارة المعهد، وتخطيط القرن ورؤيته المستقبلية، إضافة إلى تفاني فريق العمل والموظفين جميعاً في العمل لدعم الصناعة الوطنية وسائر قطاعات الأعمال والإنتاج. وكما سمعت وأهنتكم على ذلك، تمكنت من تجاوز أزمة كورونا وجمود الأعمال التي هيمنت على لبنان والمؤسسات العام الماضي. وبفضل السياسة الرشيدة، حافظتم على عمل المعهد بالوتيرة المعتادة خدمة للاقتصاد والمجتمع. وهذا الأمر بحد ذاته إنجاز كبير في ظل وضع صعب ومعقد جداً.

جال وزير الصناعة جورج بوشكيان في معهد البحوث الصناعية تلبية لدعوة المدير العام للمعهد بسام القرن، بمشاركة المدير العام للوزارة داني جديون والمديرة العامة لمؤسسة التقنيين والمواصفات اللبنانية ليينور لينا درغام ومديري وكوادر ورؤساء الأقسام والمراكز في المعهد. وتفقد المختبرات، واستمع إلى شروح تفصيلية عن تجهيزاتها وطرق عملها. وقبل الجولة عقد اجتماع في قاعة المحاضرات عرض خلاله فيلم عن تاريخ المعهد ومراسل تطوره. ورحب القرن بالوزير «صديق المعهد والمطلع على ماهية وطبيعة عمله والداعم له»، متمنياً له النجاح في مهامه الوزارية، مشدداً على «وضع المعهد بتصرفه والمساهمة في نمو الاقتصاد اللبناني وتحديث الصناعة الوطنية». بدوره، أعلن بوشكيان عن افتخاره وافتخار اللبنانيين بمعهد البحوث الصناعية، كاشفاً أنه سيدعو «البعثات والمنظمات والمفدين اللبنانيين لعقد الاجتماعات في المعهد الذي يعتبر مرجعية وركناً أساسياً في الاقتصاد الوطني». وقال بوشكيان: «يعود الفضل لاستدامة المعهد وتطوره وتقدمه وتبوئه مركزاً متقدماً في مجال خدمة الاقتصاد

**VOIX DU LIBAN RADIO**  
**18/05/2021**

**The role of the Industrial  
Research Institute in  
Conformity assessment of  
Merchandise and Products  
with their quality standards.**



**AL JAZEERA**  
**28/06/2021**

**Water pollution of the Litani  
River in Lebanon**





IRI Premises, Lebanese University Campus, Hadat, Baabda, Lebanon  
P.O.Box 1107-2806 Beirut  
Tel/Fax +961 5 467831      Mobile +961 3 286340  
[www.iri.org.lb](http://www.iri.org.lb)