WORK PACKAGE 1: Preparation

Field visit to complete the state of the art

Visit of the University of BÉJAÏA and CONSTANTINE,

May 22nd and 23rd, 2017

Enrico Gastaldi (UNITO) & Yusuf Kocoglu (University of Toulon)

SUMMARY

Introduction and national context

The Algerian economy depends almost exclusively on hydrocarbon and gas resources. This wealth has several positive repercussions for the country but also has more negative consequences. As for our topic of interest, innovation and technology transfer in universities, the negative effects are related to the disincentive effects of a rent economy. Indeed, when the prices of energy raw materials are high, the government has significant resources to meet the most important needs of the economy and therefore does not stimulate companies and universities to generate innovations and win in international competitiveness. Also, the context of innovation in Alger could be perceived as not very dynamic. However, the decline in raw materials has recently prompted the government to reconsider its strategy for economic diversification and industrial development. This new context is more favourable to R & D activities and policies to support innovation, and technology transfer activities are increasing. Universities therefore have a great opportunity to set up an organization of their ITT activities and to create links with their economic environment. In this context, the Satelit project can serve as a pilot experience and stimulate momentum around the project's Algerian partners.

State of scientific research in Alger

The organization of scientific research is still traditional, characterized by a very low level of autonomy and very limited interactions with the socio-economic world of the reference territory. Research units and laboratories in universities, created in the early 2000s, are the structures that carry the research activity. Their budget is set annually by the Ministry and an "inspector of public finances" must preventively target expenses, which increases the procedures. The validating of the research is not structured yet in Alger, one can find different structures participating on this domain without real coordination nor consultation.

Over the last two decades, regulations governing R & D activities have developed

- In 1998 the ANVREDET is created - National Agency for the Validating of Research Results and Technological Development (http://www.anvredet.org.dz/)
  This agency seems to be responsible for promoting research for the entire national territory. The impression at the end of the two visits is, however, that the relations with the universities visited are rather sporadic. For example, during our visit to the University of Béjaïa, we learned that the agency was in charge of supporting some entrepreneur's projects, but not all.

During a future visit of the Satelit project in Alger, ANVREDET should be met to deepen the knowledge of its role and to see with them how the Agency can be involved in the Satelit project on the one hand and, on the other hand, how it can support the network of ITT offices in Universities.

-In 2008, the General Board for Scientific Research and Technological Development was created at the Ministry.
https://www.mesrs.dz/les-directions1/-/asset_publisher/DWMFJ9FQzN2r/content/la-direction-generale-de-la-recherche-scientifique-et-du-developpement-technologique-dgrsdt-;jsessionid=5D53EB46B696D0520119EB7C668C2C2E

- 32 priority axes have been defined for scientific research, and attention for the environment is common to all. (I did not find the legislative source, which could be on

this page but it is empty ... https://www.mesrs.dz/principals-programs-of-programmes-quinquennal)

The University of Béjaïa has been designated responsible for the priority axis on regional products, tourism and mountain agriculture.

- The National Research Project has planned the establishment of National Thematic Centres, in charge of determining the needs of the economic and social aspects of the country, in relation to the priority axes entrusted, to organize the validating of research (prototypes, patents, incubators and start-up) for the whole country, bridging between universities and businesses even through paid services. Research must move closer to its territory and meet the needs of local economic and social actors.

The centres have legal personality and financial autonomy and must develop their own resources. Each centre is placed near the University to be in contact with research potentials and exploit them, but it remains independent. The centres have their own staff, a Director, a Board of Directors, a Scientific Council. Currently 12 Research Centres are active according to the Ministry's website, the list is as follows:

1. Centre for Development of Renewable Energy (CDER) -Alger
2. Centre for Research on Scientific and Technical Information (CERIST) (CERIST) -Alger
3. Centre for the Development of Advanced Technologies (CDTA) - Alger
4. Industrial Technology Research Centre (CRTI) - Alger
5. Centre for Scientific and Technical Research on the Development of the Arabic Language (CRSTDLA) -Alger
6. Research Centre for Applied Economics for Development (CREAD) - Alger
7. Semiconductor Research Centre for Energetics (CRTSE) -Alger
8. Centre for Research in Social and Cultural Anthropology (CRASC) -Oran
9. Centre for Scientific and Technical Research on Arid Regions (CRSTRA) -Biskra
10. Centre for Research in Biotechnology (CRBt) -Constantine
11. Centre for Scientific and Technical Research in Physical and Chemical Analysis (CRAPC) - Tipaza
12. National Research Centre in Islamic Sciences and Civilization - Laghouat

The University of Constantine is home to the Centre for Research in Biotechnology (CRBt) (http://www.crbt.dz/), whose work has started well as evidenced by the wealth of information available on the website. The University of Béjaïa is expected to host an ICT Centre, but it is a materialization course and the work has not really started yet.
In addition to the 12 Research Centres, Alger is completing its research program with 12 research units and 6 research agencies. In total, Alger has 30 public research institutions (outside universities) to structure its research activities at the national level. The 6 research agencies are:

1. National Agency for the Validating of Research and Technological Development Results (ANVREDET)
2. Thematic Research Agency in Science and Technology - El Harrach - Alger –
3. Thematic Agency for Health Sciences Research - Oran –
4. Thematic research agency in social sciences and humanities - Blida –
5. Thematic Research Agency in Science of Nature and Life-Béjaïa
6. Thematic Agency for Research in Biotechnology and Food Science - Constantine -

Both partner universities of the Satelit project benefit from the presence of an agency. For Béjaïa, these are the Sciences of Nature and Life and Constantine of Biotechnologies and Agri-Food Sciences.

Finally, out of the 12 research units in the country, three are located at the University of Constantine I and one at the University of Béjaïa.

- Research Unit Modeling and Optimization of Research Systems - U. Béjaïa
- Research Unit Environmental chemistry and molecular structure - U. Constantine 1
- Research Unit Valorization of natural resources, bioactive molecules and physico-chemical and biological analysis - U. Constantine 1
- Research Unit Science of Materials and Applications - U. Constantine 1

In conclusion, both partner universities, in particular the University of Constantine I, benefit from a very rich research environment, supported by a new dynamic. It would therefore be appropriate for the Satelit project to create a synergy between these different research organizations around research valorization issues.

I. University of Béjaïa visit report, Monday 22nd May

(see the agenda of the visit and the list of participants in the meeting in annex)

Visit organized by Mrs. Aida Benhamida and Mrs. Salima Bourbet,

After the welcome of the President of the University, Professor Boualem Saidani, the working meeting began with a general presentation of the University of Béjaïa and the organization of research activities. The University of Béjaïa, created in October 1983, is a multidisciplinary public institution that welcomes nearly 45,000 students, 1,714 teachers and 1,227 technical and administrative staff divided into eight faculties: Technology - Exact sciences - Law and legal and administrative sciences - Sciences of Nature and Life - Letters and Languages - Humanities and Social Sciences - Economics, Management Sciences and Commercial Sciences - Medical Sciences.

In terms of research activities, the University of Béjaïa has **33** research laboratories, including a research unit. Of these **33** entities, **27** are scientific and technical, signaling the scientific dominance of this university. National research projects under the CNEPRU (National Committee for the Evaluation and Programming of University Research) play an important role in laboratory activities. There are also more modest activities in international research projects.

Scientific research at the University of Béjaïa, as in other Algerian universities, has consolidated for a decade around research laboratories and doctoral study centers by theme. Five years ago, the Ministry launched a new dynamic in universities to harmonize the organization of research activities within universities, define priority areas of research and strongly encourage researchers to work in a logical of scientific publications. The lack of a certain budgetary autonomy remains however being an issue for the daily operation of the research laboratories.

The University of Béjaïa has been selected to host two national centers of innovation. An important part of the meeting focused on the organization of doctoral studies and the selection of PhD students in Algerian universities (see box). Before 2000, there was no PhD at the University of Béjaïa and the first defenses took place in 2004.

PhD in Alger

Alger, like many other countries, has gradually adopted the LMD system from 2004/2005 for the baccalaureate until 2009/2010 for the doctorate. Currently, both doctoral systems coexist even though the old system becomes marginal. Access to the LMD doctorate is by competition for holders of a Master LMD. The ministry awards a number of PhD posts and the university organizes the recruitment competition among its master's graduates. The doctoral scholarship is 1200 AD per month to which are added facilities such as housing aids and registration fees of almost zero.

The doctoral training is organized under the supervision of the Doctoral School by sector. There is a growing emphasis on the need to produce national and even international scientific publications to support a thesis. The PhD schools also support projects for international mobility of PhD students in the form of a research internship but this project faces

administrative difficulties (visas) and there is a lack of international research networks large enough to accommodate researchers. Alger needs greater international openness to foster the integration of researchers into international networks and outgoing mobility as an entry point.

Theses in companies are not developed and this possibility is not really framed in the reference legal texts.

Assistive measures for the transfer of technology and assistance to the professional integration of graduates

• CATI (Technology and Innovation Support Center) is planned but not yet operational. On the basis of the information collected on the website, we see that it was instituted based on an agreement dated in March 5th 2012 with the Algerian National Institute of Industrial Property (INAPI). The project for the creation of these centres was launched under an agreement between INAPI and the World Intellectual Property Organization (WIPO), which is committed to provide technical and material assistance. The main role of the latter will be to bring the university closer to the economic enterprise and to allow an exchange of information and training and to follow researchers' innovation patents.

• University Business Liaison Offices (BLEU)
In 2014, the Ministry decided to generalize University Business Liaison Offices (BLEU) in all Universities after a pilot phase in some pilot universities. The main mission of this office is to facilitate relations between the University and businesses and in particular to connect graduates with local businesses to facilitate their professional integration. BLEU must also strengthen the university's openness to its socio-economic environment, particularly through the promotion of scientific, technical and technological research, and through the relevance of its diplomas as added values of the university. The interface structure fulfils an impulse function, advice and support for university teams and their industrial partners.

In theory, the missions of BLUE are the following:

- To offer continuing education programs adapted to the needs of companies.
- To contribute to the training needs and desires of companies, both in training services and in research services.
- To promote the transfer of technology in the university-business sense.
- To contribute to making available to its partners the human and material resources needed to conduct projects carried out jointly.
- To work in close collaboration with the services of internships and professional integration.

In practice, BLUE is under human resources (1 person most often) and does not promote research. He is mainly active in job placement and internship research. However, this structure can be strengthened to implement the validating of research.

• Entrepreneurship House
It was created in 2007 at the University of Constantine and the Ministry decided the generalization of the concept to Universities and ENS from 2014. The house of entrepreneurship works in close collaboration with the Ansej (National Agency of Support

Youth Employment), which is a public body in charge of helping to finance business start-ups by young people (18-35 years old). However, in practice, young people's business creation projects are rarely related to the innovative activities developed within the University. This is a traditional activity. Thus, among the activities we can find:

- The organization of information days, awareness raising and introduction to entrepreneurship for the benefit of students. These actions help to stimulate the entrepreneurial awakening of the students;
- Development and implementation of training programs in business creation and management for students. This teaching consists, in first place, in the organization of short cycles of one to two weeks in the form of introductory sessions to inform students about the ANSEJ and the business creation environment while showing them the appeal of entrepreneurship. The training is currently held twice a year.

There is not yet any specific activity for the creation of start-ups or innovative activities, moreover startups are born outside the university due to the lack of suitable structure.

Final remarks and conclusion:

The University of Béjaïa has important research advantages and is part of a very recent national dynamic, so is difficult to identify all the consequences as the communication of the Ministry is incomplete on these topics. The University of Béjaïa, like the city of Béjaïa as a whole, is under construction with the erection of many buildings, many of which will be dedicated to research. It is therefore difficult to have, currently, the necessary perspective to have a clear vision of future directions, but the University could take advantage of the positive momentum from the outset to install a system of validating of research that will accompany the development of business research activities of the University. Research topics, including the exploitation of local food resources (cactus, cheese, dates,) or local agriculture (research on the capacity of the earth to retain rainwater) have been presented and look to have a significant potential for valuation. When the TIC centre is up and running, the University of Béjaïa will have a tool for creating technological innovations, which will require a structure that can enhance these research activities.

II. Report of the visit to the University of Constantine, Tuesday 23rd May

(see Agenda of the visit and list of participants in the meeting in Appendix)

Visit organized by Mrs. Nadia Ykhlef and Mrs. Imene Bakiri,

After a presentation of the Satelit project and the objectives of our mission to all the participants, we followed the presentations of the activities and research organizations of the University of Constantine I. In particular, the University Business Liaison Office was discussed (BLUE), PhD schools, FABLAB CIRTA and various innovation activities of young researchers just awarded at the national innovation competition held in Alger. Presentation documents are available on the Dropbox directory of the Satelit project.

The University of Constantine is a pioneer in many fields in Alger, especially for those that concern the university socio-economic world relationship. Indeed, it has been a pilot in setting up University Business Liaison Offices (BLEU), as well as for Entrepreneurship Houses. The university is aware of the need to make the validating of scientific research, by activating the necessary structures, in liaison with the National Directorate of Research. Although the general attention, as in the rest of the country, is still very largely focused on scientific publications, the university raises awareness among its researchers on the issues of validating but does not have a real structure dedicated to the validating of research. From this point of view, the SATELIT project can speed up the consideration on the process of validating of research by training people to be included in the valuation structures.

The research activity at the University of Constantine I is very dense, it organizes around 70 research institutions including 67 laboratories and 3 research units. The presence of the Centre for Research in Biotechnology (CRBt) is a real advantage for the University, this centre can boost research activities on a strong and promising topic of the university: biotechnology.

The structures of concern are:

• **University Business Liaison Office (BLEU):** one of the first offices created in Alger. It proposes to put students in touch with companies but, as in other universities, its role concerns more the students of the cycle's license and master for obtaining internships and jobs, the development of the entrepreneurship than the activities of research doctoral students. However, some activities are dedicated to innovation such as the creation of a catalogue of research for companies or the establishment of an innovation prize. Finally, the office is developing an observatory for professional integration. BLEU's experience, networks and skills in business relations can be very easily exploited as part of a structure dedicated to the promotion of research. Currently, as in other universities, the BLEU is struggling to work due to lack of human resources and financial resources, which depends solely on the budget of the University.

• In 2007, the University of Constantine also piloted the launch of **entrepreneurship houses** in partnership with Ansej. The aim is to make students more aware of entrepreneurship by organizing training sessions, thematic days and meetings with business leaders. There is, however, no particular targeting towards students focused on innovation and research. This structure was generalized to all universities in the country from 2014.

• **Career Centre**: Created in 2009, its objectives are to improve the employability of students through training on job search activities (CV, cover letter, job interviews...), to support students in their research internships, offer training courses during university holidays, and organize forums for meetings and a job fair.

• **The Fablab CIRTA**: The Fablab Creation Innovation Research Technologies Application is a new structure dedicated to creation and innovation. Its objective is to provide students and researchers with innovative ideas with the purpose of finalizing their projects and move from the simulation phase to the experimental one; the implementation of prototype and then the marketing phase for eligible products. This Fablab provides practical training and are related to the career centre to help young people in their professional integration. The main asset of FABLAB will be the centralization of equipment such as 3D printers, modelling software, various scientific and technical tools as well as human resources. For the year 2016/17, the Fablab Cirta was able to help finalize 41 projects, 30 of which were exhibited at the national exhibition of research products which was held from May 18th to 23rd in Alger with two projects Winners at the Master level. This Fablab currently works with two engineers and four technicians plus other teachers who assist in rotation. The operating budget is entirely based on that of the University. Although Fablab's projects are a national incitement, the University of Constantine is pioneering in this field in Alger because few Algerian universities have actually launched. The Fablab could usefully be supplemented by a technology support centre (in development) that could help researchers on issues of intellectual property rights, patents, etc.

• **International cooperation in the field of research validating**: The University of Constantine participates in a large number of international projects, including one in particular in the areas covered by the Satelit project: Porfire, which is a TEMPUS project with three main objectives: i) To establish an environment conducive to the creation of innovation hubs, entrepreneurship and research-action ii) Strengthen relations between universities and industries and iii) Develop the knowledge triangle (education / innovation / research). As part of this project, Porfire teachers were able to follow training related to innovation support, university business relations.

Conclusion:

The University of Constantine has a very important research and innovation potential and is a pioneer in Alger in the field of university-business relations and technological innovation activities. This favourable environment is materialized by the setting up of a FabLab, which has already produced very encouraging results. The Satelit project is a real opportunity to train staff in the themes of validating to concretize the project of the University to have a centre of support to the technology, which would centralize the human skills on the accompaniment of the researchers on the commercial validating and the legal protection of their innovations.

General conclusions

Algerian universities have a rich potential for research and innovation, which has just been exploited in terms of validating and technology transfer to the economic world. The strategy promoted by the Ministry for two or three years aims to develop university-business relations in general and in particular in the areas of technological innovations. Also, a large number of changes in the legal framework, the organization of research on the territory, priority research axes are in progress and make the analysis of the situation a little complex for an outside eye. But for the purpose of the Satelit project, this situation is a great opportunity to seize to support this change and contribute to it because the Universities do not have a structure yet dedicated to the validating and transfer of technologies. The training plan for Alger will be based on core courses covering all major areas of technology transfer.

Université de BÉJAÏA

Project ERASMUS+ SATELIT meeting
"Academic Solutions for the Euro-Mediterranean territory Leader of Innovations and Technological Transfers of Excellence"

May 22nd, 2017

Program

09:00h Welcome of our guests by Prof. Saidani, Rector of our university.
09:30h Work meeting
Are invited to this meeting for the University of Béjaïa:
- Teacher. Ahmed Bouda, Vice Rector in charge of post graduation and research,
- Teacher. Aida Benhamida, Vice Rector for Cooperation and External Relations, local coordinator of the SATELIT project
- Teacher. Khodir Madani, Director of the Biomathematics Laboratory, Biophysics Biochemistry
- Prof Abdelkamel Tari, Director of the Innovation and Technology Transfer Centre
- Dr. Toufik Mostfaoui, Research Professor of the University proposed for training in the framework of the SATELIT project
- Dr. Djamel Eddine Kati, Teacher Researcher of the University proposed for the training within the framework of the SATELIT project
- Mrs. Salima BOURBET, Head of Cooperation Department and responsible for the administrative management of European projects

12:00h Visit of the premises of the future National Centre for Digital Innovation
12:30h Visit of the research laboratory dedicated to agro-food sciences and meetings with PhD students
13:00h Lunch
15:00h Departure to Constantine

Tasdawit n Bgayet
Université de Béjaïa

Co-funded by the Erasmus+ Programme of the European Union

Satelit

Réunion de Travail dans le cadre du Projet SATELIT

N°	Nom & Prénom	Qualité	Emargement
01	BENHAMIDA Aïda	V/Recteur. Relex	
02	BOUDA Ahmed	V/Recteur PGRS	
03	MADANI Khodir	Dir L3BS	
04	BOURBET Salima	chargée de Projets Internationaux	
05	Kocoglu Yusuf	EC Univ de Toulon	
06	GASTALDI ENRICO	UNIVERSITE DE TURIN	Enrico Gastaldi
07	MOSTEFAOUI Toufik	Enseignant	
08	KATI Djamel Edine	Chef de département	
09	TARI Abdelkamel	Directeur du laboratoire LIMED Chef du projet CITT-Bejaia	
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Béjaia, le 22 mai 2017

University of Frères MENTOURI Constantine 1

Project ERASMUS + CBHE SATELIT meeting
"Academic Solutions for the Euro-Mediterranean Territory Leader of Innovations and Technological Transfers of Excellence"
N° - 574015-EPP-1-2016-1-EN-EPPKA2-CBHE
May 23rd, 2017
Program

10:00h	Welcome by the Rector of the UFMC1, Pr. Djekoun Abdelhamid
10:15-10:30h	Presentation of the Project and the objectives of the mission: - Mr KOCOGLU Yusuf, expert for the SATELIT project - Mr GASTALDI Enrico, expert for the SATELIT project - Mrs YKHLEF Nadia, Vice-President -UFMC1, local coordinator of the project
10:30-10:45h	Presentation of the University Business Liaison Office (BLUE) Pr. MANSOURI Nora Director of BLEU
10:45-11:00h	Presentation of doctoral training at UFMC1 Pr. BOUFENDI Toufik Vice-Rector- UFMC1
11:00-11:15h	Research Laboratory Presentation Pr. SAHLI Salah
11:15-11:30h	Coffee break
11:30-11:45h	Innovation in the Agri-Food field. Dr. Becila Samira, INATAA
11:45-12:00h	The Fablabs: Missions and objectives. Mr Aris Skander, head of electronics department, member of the "Fablabs " team Mrs. Belil Iness, SNV faculty teacher, members of the Fablabs team
12:00-12:15h	Innovation in agrifood, Ms. BETINA Soumiya,INATAA. Presentation of the case LAHMAR Karim
12:15-12:30h	Presentation of the Innovation Unit Mm MANSOURI Nora
12:30-13:00h	General Discussion: Strategy of the UFMC1
13:00-14:00h	Lunch
14:00-16:00h	Technology platform visit, Fablabs Research laboratories

Satelit
TRANSFERT DES SAVOIRS
INNOVATION TECNOMOGIQUE EUROMEDITERRANEE

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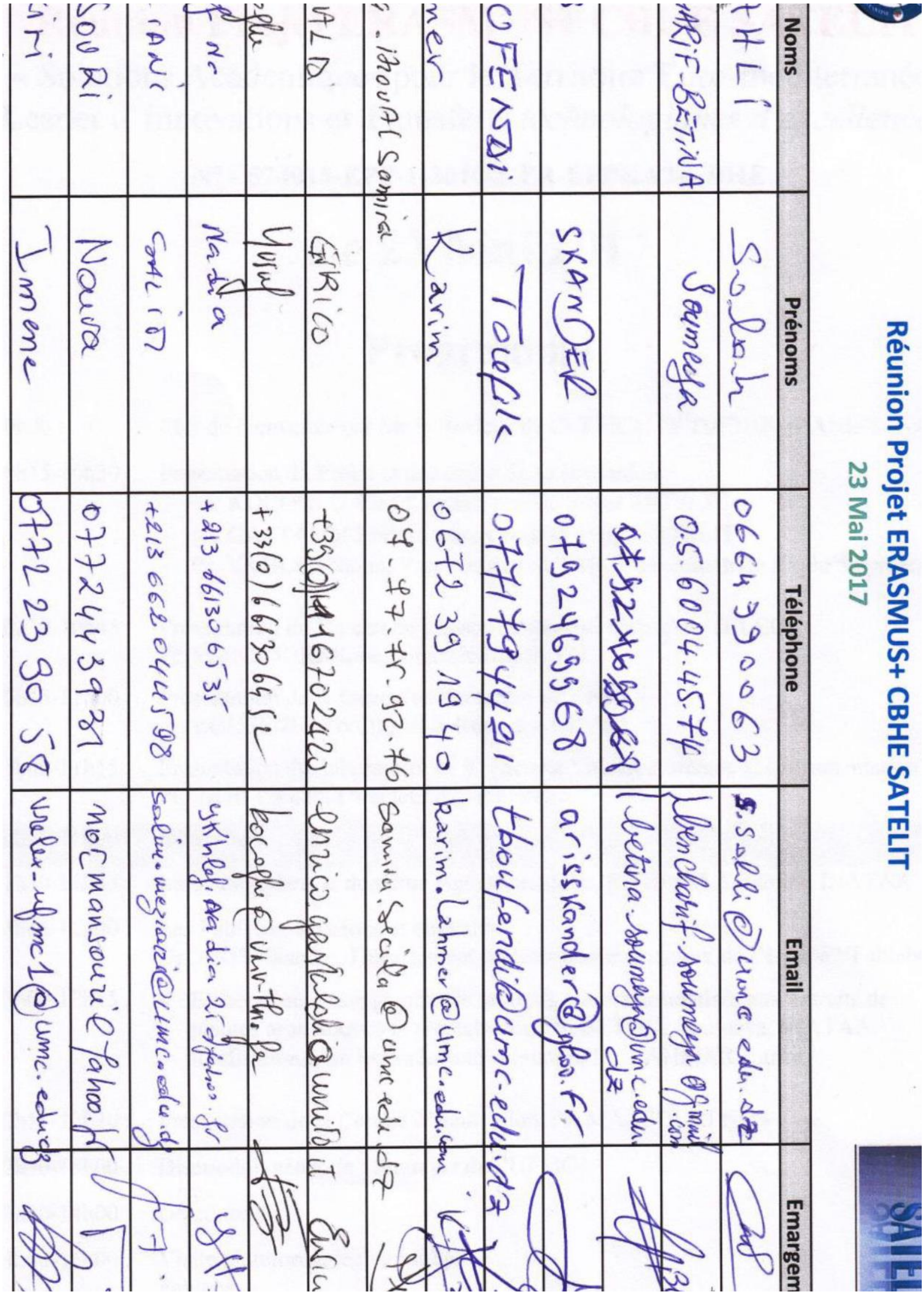
Visit of Tuesday, May 23rd , University of Constantine, List of participants in the meeting



Réunion Projet ERASMUS+ CBHE SATELIT

23 Mai 2017

Noms	Prénoms	Téléphone	Email	Emargem
tHLI	Salah	0664390063	s.salhi@umc.edu.dz	
ARIF-BETINA	Soumeya	05.6004.4574	benchArif.soumeya@gmail.com	
		[illegible]	betina.soumeya@umc.edu.dz	
	SKANDER	0792469968	arissKander@yahoo.fr	
OFENDI	Toufik	0771794491	tboufendi@umc-edu.dz	
ner	Karim	0672391940	karim.Lahmer@umc.edu.com	
. IhouAl Samira		07.97.77.92.76	Samira.Secila@umc.edu.dz	
ALD	ENRICO	+39(0)11 16702420	enrico.garlaschi@unito.it	
phe	Yusuf	+33(0)661306452	kocoglu@univ-tln.fr	
f Nc	Nadia	+213 661306535	ykhlef.nadia25@yahoo.fr	
IANI	SALIM	+213 662044598	salim.meziani@umc.edu.dz	
SOURI	Noura	0772443931	nomansouri@yahoo.fr	
iri	Imene	0772239058	[illegible]@umc.edu.dz	

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