



Coordination of the Agricultural Research In the Mediterranean Area

## **D1.3 COUNTRY REPORT**

**Overview on the research system and research programmes  
on Mediterranean agriculture**

### **ALGERIA**

#### **INRAA**

*Country Focal Point: Malika HAMANA KORICHI*

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## Coordination of the Agricultural Research In the Mediterranean Area

### **BACKGROUND.**

The data contained in this report were provided by the Institutions during their collaboration within the CCRAFAT (consortium of research and development Institutes and Centers for the coordination of Agronomic and forest research and technical Assistance).

The information related to the National Administration of Scientific Research via meetings and contacts, and websites.

### **GENERAL ORGANIZATION.**

In 1998, the National research system has been organized in National Research programs and the law officially recognized the Agriculture and Food Research Program as one of the most important ones. The more recent law (05-08 of July 2008, had renewed this program and its budget fixed to 1% of the GNP, it had also added the Rural Development, territoriality and natural spaces aspect to the previous program.

The law has reinforced the national research scheme by implementing a national Research Administration in charge of the funding and the intersectorial coordination .

However, the researcher/population ratio is still low.

The NARS is also marked by a weak participation of private funding and /or in the research projects.

The Agriculture and Rural Development Department has 2 entities specialized in agronomical and forestry research and 12 institutes and centers axed on development of either specific agro-geographic areas or main topics (livestock, orchards, vegetables, artificial insemination etc.).

This National Research Program generated a great number of research projects which were financed by the National Fund of Research and more recently by the National Fund for the Environment.

These national Research projects are mainly focused on identification, preservation and valorization of the natural resources (genetic resources (plant, animal and microorganisms), with the more and more common utilization of molecular biology techniques, optimization of the plants irrigation techniques, the renewed energies, and numerous projects nationally and internationally funded (IDCR, Euromed Heritage, ICARDA, IFAD, etc.) focus on the identification and determination of the Stakeholders strategies, including the drought mitigation, the gender issue etc. in different areas (steppes, Oasis, etc.) using the different participatory, pluri /trans - disciplinarity and gender approaches and tools.

Actually Algeria has institutionalized certain participatory approaches as imperative condition, this is the case of the Integrated Proximity Rural Development Projects considered as the base unit of the Rural Renewal politic which are characterized by

- Bottom -up building of the proximity projects;



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- Organization et codification of the targeted populations ;
- Promotion of the animation, facilitation and coordination functions and enhancement of the networking
- Promotion of different decision levels: community level (proposition & acceptance of the formulated project), daïras (project confirmation), wilayas' (project validation) and wali (approbation).
- The principal research and Development tasks are local problems (desertification, unemployment, scarcity of natural resources, enhancement of economic activities, Indigenous knowledge and knowhow identification, and promotion of these immaterial patrimonies.
- Priorities are given to enclaved populations and the project must create a real dynamic to the territory.

The overall structure of agricultural research in Algeria is organized as following :

1. **The National Research Fund managed by the High Education and scientific research (French acronym; MESRS) taken in charge:**

- The 33 National Research programs,
- The research Networks
- The sectorial Research Programs
- The Research environment (tools, equipments, etc.)

2. **The Agriculture & Rural development Ministry taken in charge:**

- The salary of permanent researcher in the Mediterranean Agriculture Research;
- The direct funding of Research activities (forest research)
- The funding of important structures (gene bank, GIS, agrometeorological networks, etc.)

3. **Other Ministerial Departments** (Environment) with two calls of research proposals

4. **The Presidential special Program** which funded the Intersectorial biotechnologies station at INRAA

5. **The International Cooperation**

- Bilateral
- Multilateral

## MAPPING OF RESEARCH PROGRAMMES.

At the operational level, the Article 10 of the Law # 08-05 defines 34 National Research Programs (NRP) which specify the National policies, goals and priorities for the National



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Scientific Research and Technological Development. The official launching of the NRPs has been a major task for DG-RSDT; 600 experts of different economic sectors have been identified and involved in the scientific contents of those programs that will soon be put into the national bidding process. Meetings were held in many regional grouping of experts in January 2009, with the local or virtual participation of the national elite established abroad, in order to define themes and policies best fitting the needs of the national development, according to the procedures defined by the law on Research. The main reports are available on line (see [www.nasr-dz.org/call\\_pnr.php](http://www.nasr-dz.org/call_pnr.php)). The titles of the 34 NRPs are the following:

- ü Agriculture, food, forests, natural and rural areas ;
- ü Environment and promotion of a sustainable developmen
- ü Prevention of natural disasters and major risks ;
- ü Valorization of raw materials and manufacturing ;
- ü Nuclear energy and techniques ;
- ü Exploration and exploitation of raw materials ;
- ü Information and communication Technologies;
- ü Space technologies and their applications ;
- ü Habitat, construction and urbanism
- ü Arabic Language and linguistics ;
- ü Youth and Sports ;
- ü Tamazight language and culture;
- ü Culture and civilization ;
- ü History of the resistance and the war of National Liberation
- ü Prehistory, archeology and history ;
- ü Human Sciences and islamic studies ;
- ü Development of arid regions and anti-desertification
- ü Fishing andt aquaculture ;
- ü Water Resources ;
- ü Hydrocarbons ;
- ü Fundamental Sciences ;
- ü Renewable energies ;
- ü Industrial Technologies ;
- ü Biotechnology ;
- ü Public Works ;
- ü Health ;
- ü Education and training ;
- ü Transports ;
- ü Translation ;
- ü Communication ;



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- ü Economy ;
- ü Law and Justice ;
- ü Population and society ;
- ü National Land Management ;

The main socio-economic and Research domains for the 2008-2012 five-year plan are defined below.

**AGRICULTURE AND FOOD.** The scientific and Research objectives in this domain are focused on improving the productivity of the production systems, the development of adapted technologies for the intensification of the production systems and of the agri-food channels, the genetic improvement and the protection of plant and animal health, the mastery of drought through the rationalization of irrigation practices and the genetic approach for the adaptation of plant species to drought conditions.

**BIOTECHNOLOGIES.** The scientific and Research objectives in the domain of Biotechnologies will occur with the mobilization of the accumulated competences, especially in the areas of biomass valorization, multiplication and improvement of the species and, finally, in the domain of human and animal health.

**MAJOR RISKS.** In order to reduce the catastrophic effects of natural phenomena, the scientific objectives are to develop a better understanding of those phenomena thanks to a constant monitoring, the evaluation of the randomness of those phenomena so as to know their amplitude, their spatial distribution but as well their repetition throughout time.  
The drought and the locusta have been defined as Major Risk

**WATER RESOURCES.** The scientific and Research objectives cover the development of techniques for gathering water resources (dam and hydraulic construction), the maintenance and operations of dams, the integrated management of the water resources for each water basin, the gathering of the water resource by non-conventional means such as sea water desalinization, the promotion of water resource protection techniques, the artificial re-supplying of the aquifers, irrigation techniques and the re-use of purified used waters.

**NUCLEAR ENERGY AND TECHNIQUES.** Within the context of renewable development, the nuclear technology and techniques are considered as the approach best able to contribute to the availability of energy in the short and long term. The scientific objectives are to acquire the knowledge and the ability to develop the methods related to the fuel cycle and to the application of nuclear techniques.



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**RENEWABLE ENERGIES.** The main objectives assigned to each of the programs are to do an evaluation of the pools of renewable energy, to know and optimize the conversion processes, to transform and store those energies and develop the needed know-how, from the study to the implementation of on-site production plants.

**TERRITORY PLANNING.** The Research objectives target the know-how of Public Works and Urban Development. With respect to the arid and semi-arid regions, the scientific objectives are related to the regional climate assessment, a precise inventory of the current natural resources, the frequent monitoring of the areas, the evaluation of the erosion process and the degradation of the arid and semi-arid regions, the evaluation of the environment's potentials, the evaluation of the surface conditions, the development of treatment and analysis methods in arid and semi-arid environments, the use of new satellite Earth observation systems, the creation of structured databases, the valorization and finally, the multiplication of the Saharan plant species.

**ENVIRONNEMENT.** The program to be setup must target : the knowledge of modeling and the development of decision tools, the implementation of monitoring diagnostic methods, especially the design of Geographic Information Systems (GIS), weather and climate watch, ecosystem monitoring, risk prevention and detection of pollutants, reduction of tensions with the natural resources and the limitation of environmental challenges.

**HEALTH.** The Research effort will be focused on the following main areas : prevention and screening, treatment of prevalent diseases, reproductive health, development of human resources, organization, management and evaluation of the health systems, health costs, clinical tests, health information, education and communication, applied clinical and therapeutic research, confirmed fundamental Research, as well as medical engineering and pharmaceutical products.

**SOCIAL AND HUMAN SCIENCES, CULTURE ET COMMUNICATION.** Society is the object of those Research activities; their aim is to understand and hopefully avoid serious societal crises or at least to reduce their consequences. Social balance, stability and prosperity are therefore the main objectives pursued by this Research within the domains of social and human sciences. The Research's scientific objectives must include an understanding of the areas of rapid societal changes, so as to be able to apply that knowledge within the available or requested means, in order to cover the needs of our society as it currently goes through rapid mutations.

**INFORMATION AND COMMUNICATION TECHNOLOGIES.** The Research program targets main objectives in order to (a) establish a strategy for the acquisition, mastering and technical



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development in the favorite software domain ;(b) accelerate the start of a R&D process that would promote a knowledge-based economy ; and (c) gather the know-how resulting from the accumulation and mastering of technological knowledge in order to increase the opportunities for innovation and the creation of value-added components within the new economy.

**MANUFACTURING.** The scientific objective are centered around Research areas dealing with industrial activities that are prioritized in the five-year plan and considered to have development potentials according to recent studies. In addition and with the intention of speeding up the reconstruction (rebuilding) process and technological restructuring of the national manufacturing, it is proposed to setup a program in industrial technologies in the different domains of integrated production, electrical engineering, automation, process engineering and mechanical engineering.

### FUNDING MANAGEMENT.

In Algeria, the Scientific research, but also the technological development are managed by the Ministry of High Education and Scientific Research (Ministère de l'Enseignement Supérieur et de la Recherche Scientifique (MESRS), through a national Research Administration, which has in charge the management of the National Research fund.

The National law 05-08 of July 2008, is the reglementary framework of the national research, which include the Agronomical research. And the fund is fixed to 1%of the national Brut Income, around one billion euros for the period 2008-2013.

This fund is financing different institutions from different Ministry (as Research Institutions, Universities, and any Research Unit existing in Small and Mid scale Enterprises or large private companies.).

The funding includes the primes, environments (building, equipments etc.) but mainly the 33 National research Programs, included in the research Law.

### Funding mechanism of Research Projects.

The type of funding mechanism used in Algeria, to put the priority programmes, clearly mentioned in the National Law of Research and technological development into practice is by Call of proposals.

The call indicated the National Research Programmes, the domains and the axis of research, the quality of the head of research, and the members of the research team, the address and the submitting date. It also give some indications on the evaluation process.

All the projects funded are on a competitive basis and have an average duration of 36 months.



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The funding model used in the previous three calls of proposals was **full cost (equipments, chemicals, software, missions expenses, fuel, etc and covered indirect costs as taxes**

### Legal framework.

The legal framework used previously is the contract; Two type of contracts had to be signed:

- the first contract was between the Pilot organism (previously INRAA) for the National Research Program “ Food and Agriculture” and “Water Resources” and the owner (the Ministry of High Education and Scientific Research)
- the second one was between the project head and the Pilot Organism.

The first call of proposal was around 1 500 000 DA (1 euro = 100 DA), 15 000 Euros.

The second one was around 3 000 000 DA equivalent to 30 000 euros.

The Average budget range of individual projects per annum is around 10 000 euros (2006, 2007 and 2008).

The new law foresees the implementation (creation) of agencies replacing the Pilot Organisms, used previously.

### Property Right policy.

The results produced in the projects are generally the **Property of the research organization and/or Property of researchers**. It has to be mentioned that if the economic sector (pharmaceutical) has been funded by the National Research fund, and had numerous projects funded, the private sector in general is absent in the research field in Algeria.

So most of the researchers are functionaries, working in Research centres and/or universities., but independent researchers are also working and their outputs are valorised by the national agency of valorisation (ANVREDET).

### Valorisation and dissemination.

The information and dissemination methods in place for the projects outputs are numerous:

- Some classical using the support of papers /newsletters, or of scientific/technical and extension meetings as conferences and workshop;
- some are using the ITCs, as the websites ([www.inraa.dz](http://www.inraa.dz), [www.dgrsdt-dz.org](http://www.dgrsdt-dz.org), [www.anvredet.org.dz](http://www.anvredet.org.dz))

The Ministry of agriculture has added a network of demonstration units preferentially located at farmer level and in the 69 stations of the centres and institutions disseminated in Algeria, using the GIS to view them UD SIG.



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A National Agency for the valorisation of research outputs and technological development, organize on a regular basis, meetings regrouping the searchers and the users (Ministries, agencies, Departments)

### Implementation procedures.

#### Selection of the main Topics for the calls.

The Programme owner select through National committees composed by a scientific panel and representatives of the main involved Ministries toward each programme.

However, the main research topics for the call are decided on **priorities of the strategic research agenda, identified in the national law as National Research Programmes whose content had been identified by Programs comities, which had worked on a large participatory approach, via meetings, internet and conferences.**

The prioritisation analysis to decide the main topic of the call are mainly based on **criteria as**

- Matching with the Agricultural & Rural Development policy programs, in the case of the Programme ‘Food, Agriculture, natural and rural spaces’.
- Participation in the enhancement of food /alimentary security, one of the underlined priority of the Algerian Government
- State of Art...

The information and dissemination methods in place for the programme calls are numerous: through papers and internet, on Broadcasting interviews and on the web site of the National Research administration.

The calls of research proposal are of ad hoc type, since 3 calls have been made during the period 1997- 2010 for the national research programme “Food and Agriculture. This period covers the first law and the implementation of the second law. An imminent forth call of proposal is awaited (may 2010).

Guidelines are provided for all applicants by the Research administration /Ministry of charge of Research.

The first 3 call for proposals, were of 1 step type “full proposals” and the soon coming 4<sup>th</sup> one is also 1 step type.

In the multilateral cooperation projects of Agronomical research are mostly of two steps procedure a concept note then after approval full proposal. It’s the case with the FAO, the IAEA, ICARDA, IRCD etc.



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### **The selection Process.**

In the past three call of proposal, the number of evaluator for each project was an average of 5 persons, depending on the thematic.

These evaluators were mostly nominated/selected on the basis of the scientific experience on the sector involved in the proposal and since the implementation of the national administration of research, on the basis of an existing expert register, which include the Algerian scientists working in foreign developed countries, seen as their contribution to the research and technical development.

These evaluators are anonymous to the applicant

The evaluation procedure used in the previous proposal calls, is based on Meeting of expert board, They are Possibility for applicants to present their projects and a possibility of rebuttal by the applicants. In fact he has a period of time to ask for information or to contest, and the council study the possibility to re-evaluate the proposal.

On the basis of the 3 first call of proposals (1997-2004), the evaluation has been made by the Scientific councils of the Pilot organisms in charge of the National Research programs management; these councils are composed by internal and external evaluators of high scientific quality. And are mandate by the funders to evaluate the project proposals.

Evaluation tools are also provided to the evaluators as guidelines and standard evaluation forms.

The written evaluation is then provided to the applicant.

### **The main evaluation criteria used are:**

- The Relevance to objectives of the programme/call
- The Scientific quality
- The Innovation
- The Expected benefits and use of results
- The Expertise of applicant
- The Adequacy of management and resource utilisation
- The contribution to the training ( number of master/PhD )
- The contribution to the outputs dissemination (Publications)

### **The timeframe of the research project proposal.**

On the basis of the previous 3 calls of proposals' procedure, the time frame is the following

- From call opening to closing date for applications: **02..months**



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- From application's closing date to end of evaluation process: **.03**.months
- From end of evaluation process to final decision making: **6** months
- From final decision to project start: **06**.months

The new milestones (june2010) of the National Research Programmes are the following:

- June-July 2010: Information campaign and advocacy
- September 2010: submission of projects
- Octobre/novembre2010: selection of projects
- December 2010: contracting
- January 2011: project start
- . December 2011: Mid-term evaluation
- December 2012 Evaluation & Review of projects.

The national Administration for Scientific Research has proposed the following improvements for the 4<sup>th</sup> call of Projects:

- Negotiations with the Ministry of Finance on the absence of VAT on products intended for research) and build a list of products and equipment
- Revision of the classification of expenses including:
  - i. visa costs, correspondence, honorary consultant, national and foreign experts, travel, accommodation, catering, and other;
  - ii. Equipment / furniture;
  - iii. Supply / Car;
  - iv. Establishment of contracting cost (not to be cumulated);
  - v. The project team consists of 3-6 two researchers (02) different areas to a minimum and must be backed by a research facility (laboratory, unit, EPST);
  - vi. The project manager must hold a master, but the team may include engineers, , as support staff, a member of the Project;
  - vii. Construction of a database on research themes
  - viii. Creation of 17 centres of physical-chemical

### Project monitoring.

The projects within the different programmes are monitored via **financial issue control and Scientific work progress**.

Generally the project is monitored twice: on going and at the end by the Management organisation and the Scientific advisory board for both the management (exemple INRAA) and the funding organizations (Ministry of High education and scientific research).

The first 3 calls were lacking a real impact evaluation, which was used as a selection criterion.



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Generally they were no possibilities to extend the deadline of the projects final report/outputs, but in some cases, the project leader could postpone, after explanations, the final examinations.

If the project didn't comply with its objectives, penalties were foreseen. These were of two kind:

1. **financial (stopping of the funding at the on going evaluation)**
2. **future assignment restrictions**

## **MAPPING OF RESEARCH INSTITUTIONS.**

### **Ministry of Agriculture and Rural Development**

#### **ITGC Technical Institute of Field Crops (cereals/forages)**

The main missions of this institution are:

- Creation, selection and production of plant material species cereals, pulses and fodder;
- Programmes' development and seed production of pre basic and basic;
- Field crops development Support, Assistance and facilitation of farmers;
- Development and adaptation of technology in crop production and of technical references;
- Design, implementation and evaluation of development of major crops programmes.

This Institution has 9 experimentation and seed production stations, and has long and good experiences in management and implementation of cooperation research programs (IAO, ICARDA, FADES, IRDC, etc.)

Its expertise field cover lab experimentations on quality (bread wheat), GIS, Yield prediction, oil seeds, fallow resorption, improvement of farmer seed, breeding , identification of Local knowledge related to grains and field practices, etc.

#### **ITCMI Technical Institute of Industrial Crops and Gardening**

The Institute's essential task are the promotion of Industrial Crops and Gardening by :

- The development of technical standards (testing);
- The contribution to specific program development (Potato, Industrial Tomato, vegetables, gardening);
- Production of prebase seeds;
- Training;
- Extension of agronomical practices;



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- The management of planned investments operations.

The ITCMI is responsible for the Potato, and vegetables, Industrial Tomato and green houses chains, which have been classified as national priorities by the Algerian Government.

The institute also relies on a panel of representatives from both farms chains and production environments.

The used methodology is based on field demonstration and training by organizing courses and seminars towards technical supervisors and farmers.

The experimentations are in areas related to :

- Cultural Practices (Fertilization / Irrigation / Mechanisation);
- Integrated Pest management;
- greenhouses.

### **CNCC: National Center of Control and seeds and seedlings Certification**

The Centre is in charge of :

- Vegetative control in production of seeds and seedlings;
- Physiological qualities, physical and health laboratory control of all seeds and seedlings (domestic production and/or import);
- Control of storage conditions and seed and seedlings conservation;
- Seeds and seedlings certification prior to any marketing and use;
- issuing official certification documents;
- Proposing any legislation on the matter and ensuring its implementation.

This institution is involved in an International cooperation project with the Italian Ministry of Agriculture and Environment on enhancement of and the plant certification and the fruit production, and is partner in the INRA Corse-INRA Algeria project on the Citrus development.

It is also the leader in a Belgium project of Potato seed production through in vitro techniques and a partner of the In vitro Laboratory of Potato seed production in Tiaret (West of Algeria).

### **INPV : National Institute of Plant Protection**

This Institution is responsible for plant protection at different level:

- the border watch;
- the plant protection watch inside the country;
- control of pesticides;
- monitoring and intervention against scourges;
- technical support;
- Development of pest control techniques.



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- IPM/ Biocontrol.

The Institution (INPV) has a national character and bases its activities on 15 regional stations including 5 for the Saharan regions.

This institution is involved in several International cooperation project as :

Use of Métharizium (fungus) in biological control against the Moroccan locust (with FAO);

Testing non polluting methods as Phosphine as an alternative to methyl bromide against codling moth dates (with the Environment Ministry);

Delimitation of the production areas of the locust (*locusta migratoria*) by the use of satellite technology and geographic information system (GIS). This project is in collaboration with INA and CIRAD-Montpellier PRIFIS.

Partner in the INRA Corse-INRA Algeria project on the Citrus development in collaboration with INRA Corse - INRA Algeria, ITAFV, the INPV and CNCC.

Pre-basic Potato seed Programme with an in-vitro technique laboratory SAGRODEV - Sétif 2009-2011. The project is being implemented with the involvement of the University of Blida.

Italian Cooperation Programme on plant certification and enhancement of the fruit production with CNCC and ITAFV as national partner.

### **ITELV: the Technical Institute of livestock**

In the specific field the institute ITELV has a national mandate focuses on:

- Promotion of farming techniques;
- Valorisation and development of livestock products;
- establishment of selection and crossing patterns for genetic improvement;
- Food and feed systems development;
- Establishment of control models of animal performance.

ITELV axes its interventions through a network of experimental stations.

It has also developed, in situ conservation systems through 06 regional conservatories dedicated to local bovine races( Cheurfa Station Ali Baba), sheep (Race Hamra Station Saida), goat (Race Makatia Station Ali Baba), poultry (3 phenotypes of local chicken Station of Constantine, a local population of guinea fowl in Tlemcen station) and rabbit (Baba Ali Station ). This work acquire a fundamental importance in terms of normalization (standardization) of local animal populations. Moreover, the ITELV conducted since 2002 to the race standart formalization with the IANOR (National Normalisation Agency).

The expertise agenda of ITELV cover socioeconomics surveys, the implementation and monitoring of observatories related to the milk and poultry (broiler) chains, the Promotion of agro-products for ruminants feeding (sheep, cattle).



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It has also participated in a regional ICARDA project "Machrek-Maghreb" and an IRDC project on community and participatory approaches based project.

### **ITAFV National Institute of orchards and vineyards**

- Organize and ensure the multiplication of plant material and tree wine (departure, Pre-base and base);
- Identify, develop and deliver programs of experiments;
- Contribute to training, and retraining of technical staff and trainers in the areas related to arboriculture and viticulture;
- Provide technical assistance to the implementation of development programs of arboriculture and viticulture;
- Contribute in the development and implementation of development plans;
- To assure the grape maturity control in zones VAOG and issue labels.

The main objectives of the Institution are:

Coordination, training and technical support for arboriculture and viticulture ;

Implementation and monitoring of reference farms;

Supervision of the "creating new tree nurseries and wine" operation;

Development of Olive tree, vine and other fruit species in mountain, steppe, pre-Saharan and Saharan regions;

Selection and planting material production (pre-base) for lumber yard;

Identification and conservation of plant genetic resources of olive tree;

Genetic improvement of olive tree;

viral diseases control;

Development of Hardy crops (pistachio, almond ,...) in semi-arid areas;

Delineation of production potential areas of quality olive oil for labelling;

Rehabilitation and expansion of fields of mother plants (CMP) for the vine;

Creation of technical and scientific infrastructure for the selection and production of the starting plant material.

### **INSID National institute of Soil, irrigation and Drain**

This institute is mandate for the preservation and valorisation of natural resources (Water and soil).

INSID has four laboratories of soil and irrigation water distributed as follows:

- East: El Medfoun (Wilaya Oum El Bouagui);
- West El Matmar (Wilaya of Relizane);
- a Centre inside the headquarters of the institute (Wilaya of Algiers) ;



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- South in Adrar.

It has also an experimental station (with a of soil and water analysis laboratory) located in Ksar Chellala (Tiaret).

Its topics cover:

- Completion of pre-study on agro-pedo-sets climate (northern Algeria to the 39th parallel),
- zoning agro-pedo-climatic areas at 1 / 200, 000 (Wilaya of Bouira);
- Implementation of agro-climatic maps of northern Algeria to 1 / 500 000 ;
- Implementation of the map of land erosion sensitivity in northern Algeria on 1 / 500 000;
- Implementation of the characterization study of soil salinity and water in the Lower Chelif (Relizane) on 40,000 ha.
- Achievements of several experiments in the field of water conservation in semi arid areas;
- study classification of nearly 500,000 ha of agricultural land;
- GIS,
- Agro-meteorological network

In addition to his own programme, the INSID has a strong collaboration with the International Atomic Energy Agency on brakish use and valorisation, with the Spanish cooperation, etc.

### **INRAA National institute of Agronomical Research of Algeria**

The National Institute of Agronomic Research of Algeria (INRAA) created in 1966 has seen his legal status become EPST (Public Institution for Scientific and Technological Character) in December 2004.

INRAA's activities relate mainly to the following areas:

- Knowledge and understanding of the physical environment;
- Improvement and Development Crop Improvement and Livestock Development,
- Conservation, processing of agricultural products and improvement of their quality;
- Biotechnology applied to agriculture,
- economics and sociology of agricultural and rural world ,
- Ecology and Environment related to its missions.

It also been mandated to assure the technical aspects and coordination for the diversification and the livelihood improvement of the Rural development Policy.

INRAA has different stations as:

- Mehdi Boualem Station , including the following laboratory facilities:
  - The Laboratory of Plant Genetic Resources;



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- The Laboratory of Plant Physiology and Plant Breeding;
- The Laboratory of Animal Science,
- The Laboratory of Rural Economics and Sociology;
- The Plant Protection Laboratory
- The Food Technology Laboratory;
- The laboratory of Soil Science
- The Laboratory of Bioclimatology
- H'madena Station(Wilaya of Relizane)
- Lamtar station (Wilaya of Sidi Bel Abbes)
- Adrar Station (Wilaya of Adrar)
- Touggourt Sidi Mehdi Station (Wilaya of Ouargla);
- Oued Ghir Station (Wilaya of Bejaïa)

It also installed research units in Sétif, Constantine, Ouargla, Sidi Bel Abbes, Khemis, Djelfa, Biskra, Sidi Aissa of the Wilaya of M'sila, and Jijel.

INRAA is also responsible for a Tissue culture laboratory specialised in microtubers production, developed through the Korean Cooperation at the Wilaya of Tiaret.

INRAA developed a strong bi and multi lateral cooperation as the FAO, ICARDA, Bioversity, French, Belgian, Korean, Brazilian, Chinese, American cooperation.

It also developed strong relations and conventions with the most important technical Science university of Algiers, Tlemcen, Mostaghamen, Sidi Bel Abbes, Oran etc.

It is the president of the Consortium of Research and Development Institutes and centres, and coordinates common Action.

### **INRF National Institute of Forest Research**

The mission of the Institute have been established by Executive Decree No. 04-420 of 20 December 2004, INRF is responsible for conducting research and experiments in the following areas:

- growth, production and forestry trees and forest stands, wood technology and enhancement of the derivatives and sub-forest products, machinery and forest protection against forest fires;
- forest ecology;
- Genetics and improvement of forest species, use and conservation of forest genetic resources;
- Reforestation, improved techniques for reforestation and seedling production;
- entomology and forest pathology;



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- Water erosion and the development of methods for controlling erosion control in experimental micro watersheds;
- Wind erosion and the fight against desertification (causes, processes and control methods);
- forest biotechnology;
- Wildlife and management practices of hunting resources.

INRF has a strong and wide implementation in the various eco-agrosystems of Algeria with 18 stations spread among 14 Wilayas.

Besides its strong implication in the National Research Programmes, the National Institute for Forest Research, has several research projects with Brasilia, and is member of the INRA-CIRAD and INRAA and INRF convention.

### **HCDS High Commissariat to the Steppe Development**

Its area of intervention is the steppe, covering several wilayas from the eastern to the western part of Algeria.

Among its activities; the preservation of the natural plant genetic resources used as forages and pastures and as a mean to fight the desertification.

It has developed participatory approaches with the local communities, including the nomadic herders and the gender issue.

The HCDS participated in the research & Development “Mashrek-Maghreb” Project with ICARDA, and succeeded in the introduction and widespread of Opuntia.

It has also developed many water harvesting techniques, mainly based on Indigenous knowledge.

It used the SIG for the survey and the preservation of degraded rangelands.

The HCDS has its headquarters in Djelfa (central Steppe) and is also present in the Eastern Part (Tebessa).

### **CDARS Commissariat to the agricultural Development of Saharan Regions**

Created in 1986, its areas of intervention are the 9 Wilayas (Districts) of the Sahara, covering more than 2 millions km<sup>2</sup>, it has two other antennas (Adraar, Djemaa)

The Statutory Missions include:

- Studies / research and exploration and other work necessary for the knowledge of the environment and agriculture in the Saharan regions;
- Harmonize and coordinate development programs in this area;
- Propose legislation relating to Saharan agriculture;
- Promotion of agriculture Saharan;



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- Participation in developing training plans, teaching and extension inherent to agricultural development,
- Initiate and assist in scientific and technical events organization.

The Commissariat has a long experience in international cooperation, the main topics covered by the CDARS are:

- Agricultural and soil studies for over than 45 000 ha in Saharan areas, in the framework of a integrative World bank project;
- Review of the water directory scheme for the development of the Saharan regions;
- Inventory of varieties of Algerian date palm in a multi-sectorial and international project with IBPGRI (now Bioversity);
- Rehabilitation of old palm orchards (60,000 ha);
- Extension of Oasis by the creation of peri-urban small family farms (136 stores) ;

### **CNIAAG National Centre of Artificial Insemination and Genetic Breeding**

CNIAAG axes its interventions through a network of regional representation/stations.

Its Statutory Missions are:

- Establishment of a national seed bank animal including wildlife;
- Monitoring and controlling activities of artificial insemination on the national territory for sheep, cattle, goat, camel and equine;
- Establishment of a survey of various species involved in artificial insemination;
- Establishment of a national security stock;
- Breeding/ Testing broodstock / studbook establishment

### **INVA National Institute of Agricultural extension**

Its missions are:

1. Studies and investigations in the fields
  - a. of systems, approaches and extension methodology;
  - b. Some of communication channels, means and techniques;
  - c. design and development of on investigation methods and tools
2. Technical support and activities in rural areas by:
  - a. Establishment of coordination and facilitation mechanisms;
  - b. Development of campaigns and programs of national interest;
  - c. Organization, monitoring and evaluation of extension activities;
  - d. Development of training programs;
  - e. Organization and evaluation of Capacity building cycles.
3. Production and dissemination of extension materials:
  - a. Production of audiovisual media scripto— extension;



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- b. Dissemination of information and farming techniques → and livestock on all types of audiovisual media scripto extension.
4. Capitalization, processing and dissemination of information:
  - a. Creation of an agricultural data bank;
  - b. Processing and disseminating information.

### Ministry of High education and Scientific Research.

Currently, the network of scientific research trust account eighteen (18) establishments. It includes:

▪ **ten (10) research centers,**

1. Centre for Development of Renewable Energies (CDER)
2. Research Center on Scientific and Technical Information (CERIST)
3. Centre for Development of Advanced Technologies (CDTA)
4. Centre for Scientific Research and Technology in Welding and Control (CSC)
5. Center for Scientific Research and Technical Analysis in Physical - Chemical (CRAPC)
6. Centre for Scientific Research and Technology on the Development of Arabic Language (CRSTDLA)
7. Centre for Research in Applied Economics for Development (CREAD)
8. Centre for Research in Social and Cultural Anthropology (CRASC)
9. Centre for Scientific and Technical Research on Arid Regions (CRSTRA)
10. Biotechnology Research Center (Constantine) (BRC)

▪ **five (5) research units**

1. Unit Development of Silicon Technology (UDTS)
2. Unit Development Solar Equipment (UDES)
3. Research Unit Renewable Energy in Rural Saharan Adrar (URERMS)
4. Unit for Applied Research in Renewable Energies (URAER)
5. Unit for Applied Steel and Metallurgy (URASM)

▪ **three (3) research agencies**

1. National Agency for Development and Research University (ANDRU),
2. National Agency for the Development of Health Research (ANDR);
3. National Agency of Evaluation of Results of Research and Technological Development (ANVREDET)



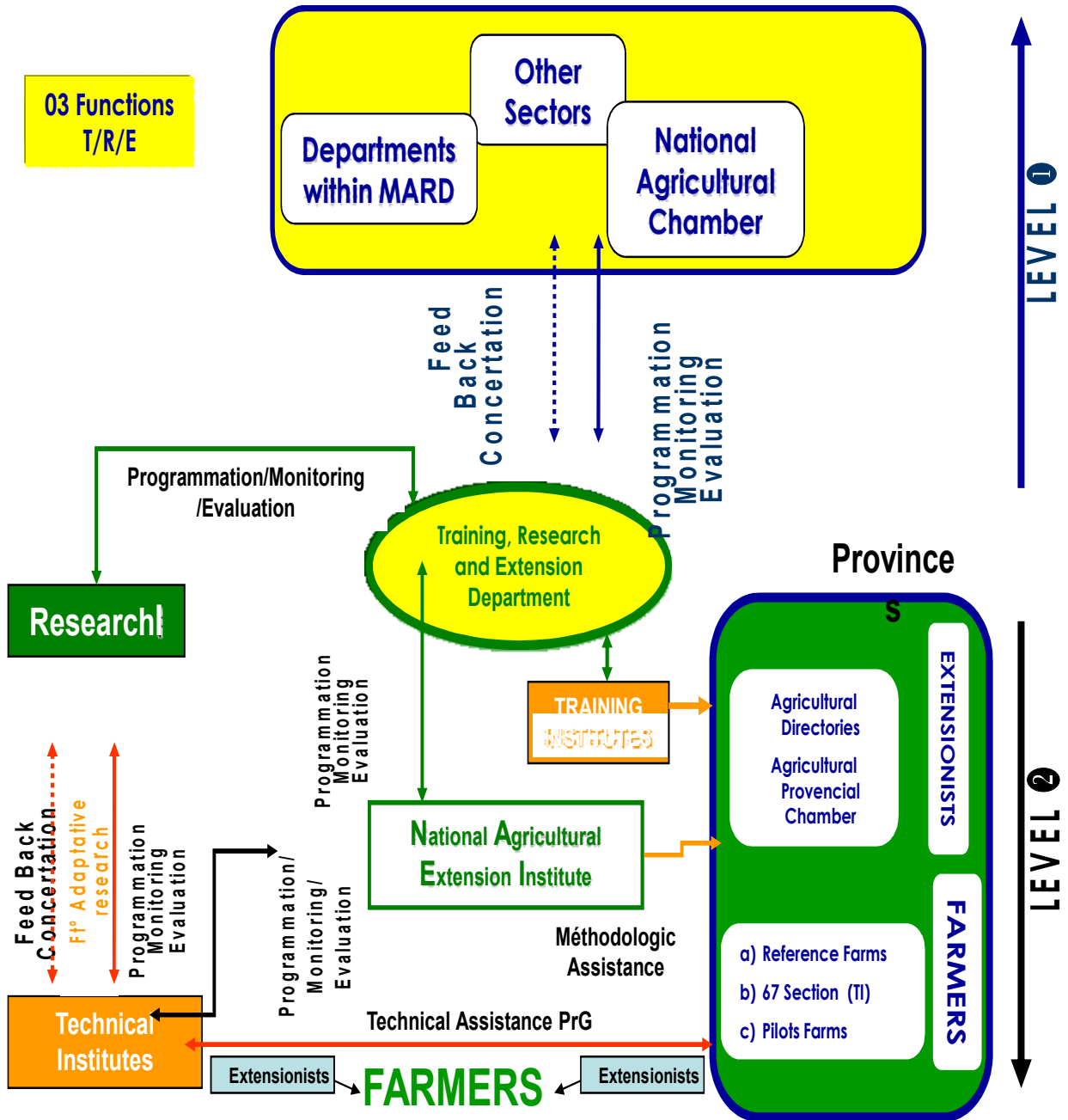
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(Algerian Country report, FAO Beyrouth 2008)



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## **Coordination of the Agricultural Research In the Mediterranean Area**

The research project could be Applied research, Adaptive research, and:

They can present demonstration plans and aim Technology development and Knowledge dissemination/transfer<sup>1</sup>:

They are very often **Training (students, PhD, M.sc but also Engineers and Technicians.**

### **They are mainly on**

- Plant breeding (cereals/fruit trees/vineyards/olive/vegetables/forages)
- Irrigation/drainage
- Forestry research
- Improvement of rural populations livelihoods
- Genetic resources preservation and valorisation
- Fight against desertification
- Renewable energies
- Technopoles development

### **The main Objectives and topics of the program are :**

1. Improving the productivity of production systems;
2. Development of appropriate technologies for the intensification of production systems and agri-food chains;
3. Plant breeding toward biotic and abiotic stresses (drought, salinity);
4. Plant protection and zoo sanitary ;
5. Rationalization of irrigation practices;
6. Mastery of irrigation and salinity;
7. Knowledge of the socio-economics and taking them into account in developing rural and agriculture policies;
8. Development of arid, semi-arid and mountainous areas;
9. Development of forest resources.

## **MAPPING OF RESEARCH FACILITIES.**

### **Points of reference of the Planning and Development Strategy during 2009-2013.**

The choices described in this Plan are aimed to define the domains that the National Administration of Scientific Research (NASR) intend to strengthen and to prioritize to face the challenges, such as the construction of new Research Center, the recruitment of new

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<sup>1</sup> Any activity/project on improvement of knowledge accessibility to final users, apart from extension service activities which are NOT under the scope of this questionnaire



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## Coordination of the Agricultural Research In the Mediterranean Area

permanent researchers, the integration of a large number of educators in the Research activity, with contractual arrangements.

Thus the themes selected for the 2009-2013 plans are: Agriculture, Water resources, Culture, Society and Education, Environment and sustainable development, Organizational Sciences, Materials Sciences, Life and Health, Major Risks, Information and Communication Technologies, nanotechnologies, fundamental sciences.

To consolidate these strategic actions specialized Research Centres are planned, in particular:

- A Center for Social and Human Sciences, in order to support initiatives working for the enrichment of the Algerian reality in all its social and cultural dimensions.
- A Research Center for a sustainable development of the environment, in order to promote a global vision about the environmental questions within society. This Center will be called the Center for Research on Green Chemistry.
- In order to strengthen innovation and development of Knowledge, the General Directorate intends to setup three Regional Centers for Technology Transfer (CTT).
- A National Center for nanomaterials and nanotechnologies, given the fact that the Algerian University has a long tradition of excellence in Materials Sciences.
- Genomics and proteomics are important and promising facets, not only for the prevention and treatment of health problems, but as well for pharmacology, nutrition and rehabilitation. It is therefore important to include in the 2010-2014 plan, major equipments for the National Center for Biotechnology Research in Constantine. This center will thus become a major contributor for the development of the Algerian biotechnology.
- Setting up in Bejaia, a National Center for agri-food Technology (CNTA) since this domain is a strategic priority for our country.
- Setting up an observatory against major risks with a cyber-infrastructure whose mission will be to identify, using the required instrumentation, the different measurements that might be related to the evolution of specific risks.
- Setting up of an pilot station for the fight against Desertification and Sand Invasion.
- Setting up in Setif, of a Research Center on materials and electronic methods for micro- and nano- photonics.
- supercomputing center for advanced studies in science and technology.

All the research Institutions, described in the previous part, present research facilities (laboratories, experimental fields, greenhouses, etc.).

## MAPPING OF TRAINING SCHEMES.

The Algerian University network is composed by:

- 36 Universities
- 13 Academic Centres



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- 16 High National Schools including the ENSA, former INA d'El Harrach
- 5 High normal schools
- 7 preparatory Schools

The law N°99-05 of 1999 permit the opening of private institutions providing advanced training missions, under the supervision and the authorization of the high Education and Scientific Research Ministry, but up to now, no private Institution and/or university has been created.

Since, a new architecture of diplomas (Bachelor-Master-Doctorate), It consists of three training levels:

- An undergraduate degree leading to the "licence" Degree
- A second cycle leading to the Master's degree
- A third cycle leading to Doctorate degree.

Higher education are organized into semesters consisting of teaching units (EU), the courses are grouped into areas of training.

A training area is a coherent structure covering several disciplines.

Courses are offered in the form of training offerings that are available in: Domain - industry – specialty.

Lessons and training received are measured in credits, not grades:

- For the Degree, 180 credits are necessary
- 120 more credits are necessary after the License for the Master;

The credits are the unit of account to measure the student's work during the semester (courses, tutorials, practical training, memory, personal work ...). The credits are capitalized and transferred from one course to another.

The reform introduces a new dynamic in the construction of higher education.

In this approach, the Ministry of Higher Education define the overall strategy of higher education and draw the national Director Scheme of higher education, the institutions of higher Education identify and propose, as part of this strategy, their own education and research policies based on their skills as well as data and their environmental potential.

The regional assessment committees (RECs) and the Committee on National Empowerment (CNH) are mandate to conduct the evaluation and validation of the proposed training and accreditation of institutions of higher education to provide relevant lessons.



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