



Institut International d'Ingénierie de l'Eau et de l'Environnement
International Institute for Water and Environmental Engineering



Building Africa Capacity for Development



Pr Amadou Hama MAIGA

RISE annual meeting Dar es Salam, October 2012



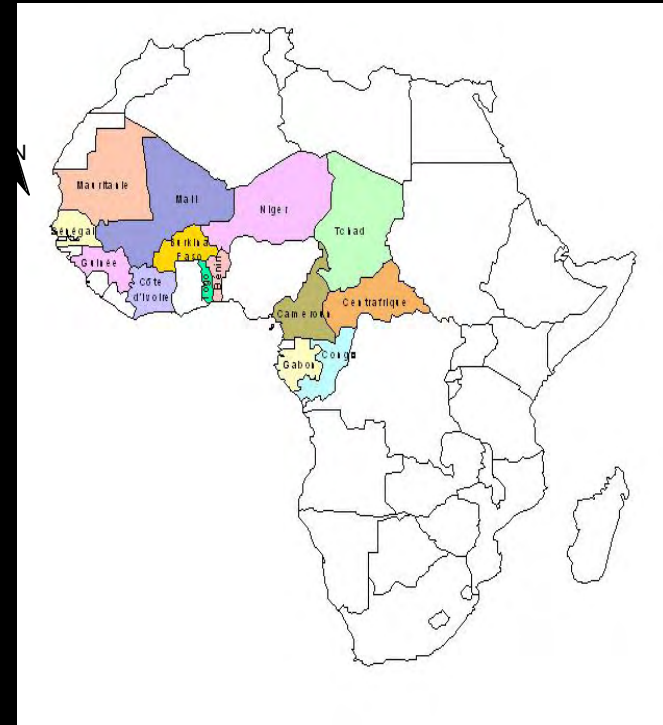
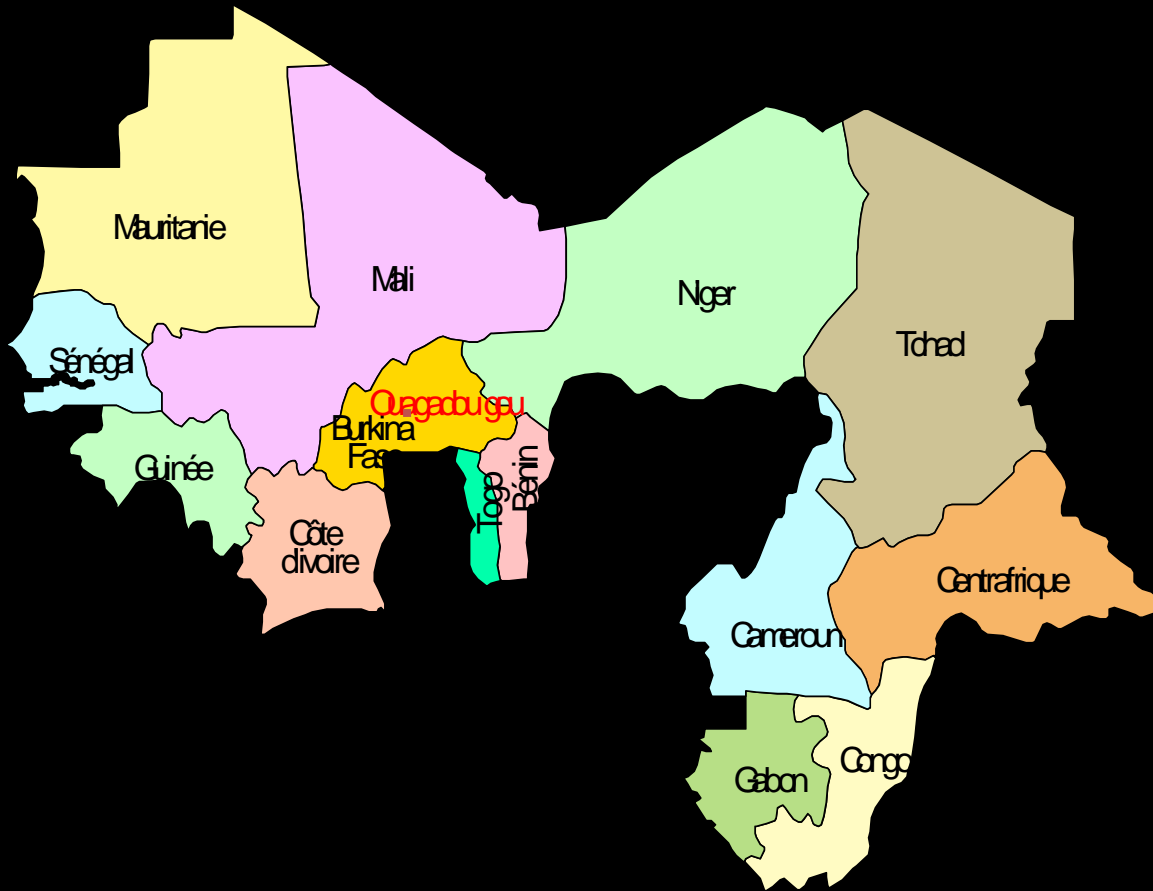
2iE: Ouagadougou- Burkina Faso

A 40 years initiative of 14 African Countries for Education, Research and Innovation for Development in

- Water
 - Energy
 - Environment
- Civil Engineering/mining



The 14 African founding countries (1970) + DRC, Bissau Guinea (2011)





2iE: Main Goals

- Train **in Africa and by Africans** the future leading scientists/engineers and business Executives
- Build an African technological **innovation** capacity and promote **business creation**
- Reverse the **brain drain**



2iE in 2012: an Internationally Recognized Institute

- Center of Excellency of **WAEMU** (Sept 06), **ECOWAS** (May 08) and **NEPAD** (Jan 09)
- Member of the French Conference des Grandes Ecoles (march 07), Campus France, CONAHEC, AAU, RESCIF, ARIST....
- An African engineering school **accredited in Europe** (EUR-ACE accreditation Jul 09, Commission française des Titres de l'Ingénieur)
- Member of AfWA, CIGR, Wanet/Capnet, ICID, WAWP/GWP, WWC....

2iE in 2012: a multicultural platform

- 45 Senior Faculties of 14 nationalities from four continents
- 25 Adjunct Professors from other the World
- More than 100 visiting lecturers (40 % from industry)
- 55 Associate Professors/ researchers
- 38 PhD students co-supervised with partner universities
- 2300 Students BEng and MSc of 34 nationalities

2iE in 2012: Multiple Partnerships

Universities

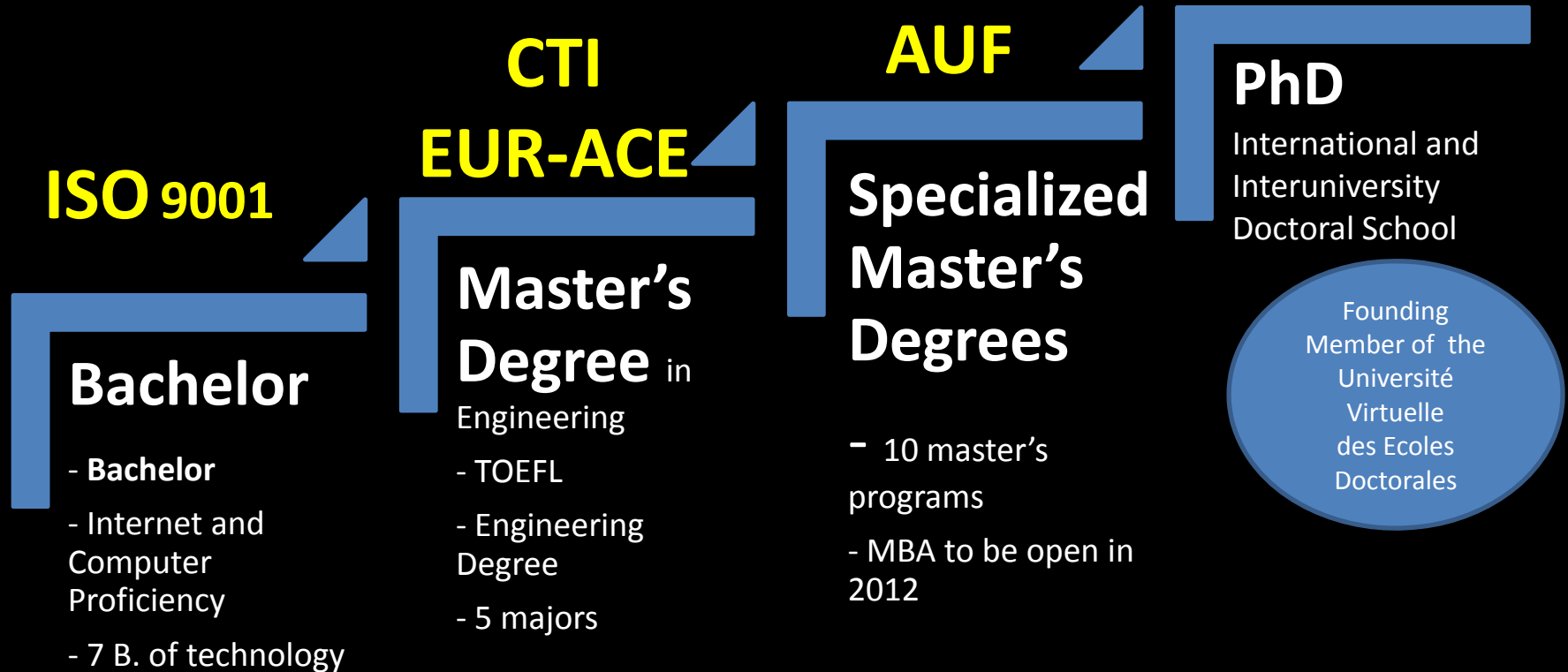
- American: Tuskegee University, Princeton, Duke, Texas
- European: INSA, ENTPE, EPFL, UMPC, Montpellier II, Perpignan, UTC, Rennes I, Strasbourg, IHE Delft
- African: U. of Ouagadougou, KNUST Kumasi (Ghana), AUST Abuja (Nigeria) and AIST Arusha (Tanzania), U Cape Town, IAV Hassan2 Morocco, Univ Abidjan
- Asian: U. Hokkaido, U. Koshi, AIT Bangkok, IT Bandung

Research Centers

CIRAD, IRD, CEA/INES, IWMI, Ouranos (Canada), EAWAG

Private Sector TotalSA, Vergnet, VEOLIA, SUEZ, AfWA, Nutriset, Bertin, SIREA, SOGEA, ...

Accredited Onsite and Distance Learning Programs



Research and Training Programs Tailored to Meet Development Needs

5 Laboratories

LEDES

Water, decontamination, ecosystems and health

LEAH

Hydrology and water resources

LBEB

Biomass, Energy and biofuels

LESEE

Solar Energy and Energy Savings

LEMC

Building Eco Materials







2iE Graduates in Africa

Pays d'origine	1966 à 2005	2006 à 2011	Total
BENIN	256	95	351
BURKINA FASO	483	453	936
CAMEROUN	344	171	515
CENTRAFRIQUE	59	10	69
CONGO	172	20	192
GABON	87	34	121
GUINEE	81	23	104
COTE D'IVOIRE	249	114	363
MALI	164	60	224
MAURITANIE	61	18	79
NIGER	283	103	386
SENEGAL	310	66	376
TCHAD	164	94	258
TOGO	259	55	314
RDC	4	9	13
AUTRES (10)	19	25	44
Total	2995	1350	4345

550 diplômés
quitteront 2iE
chaque année

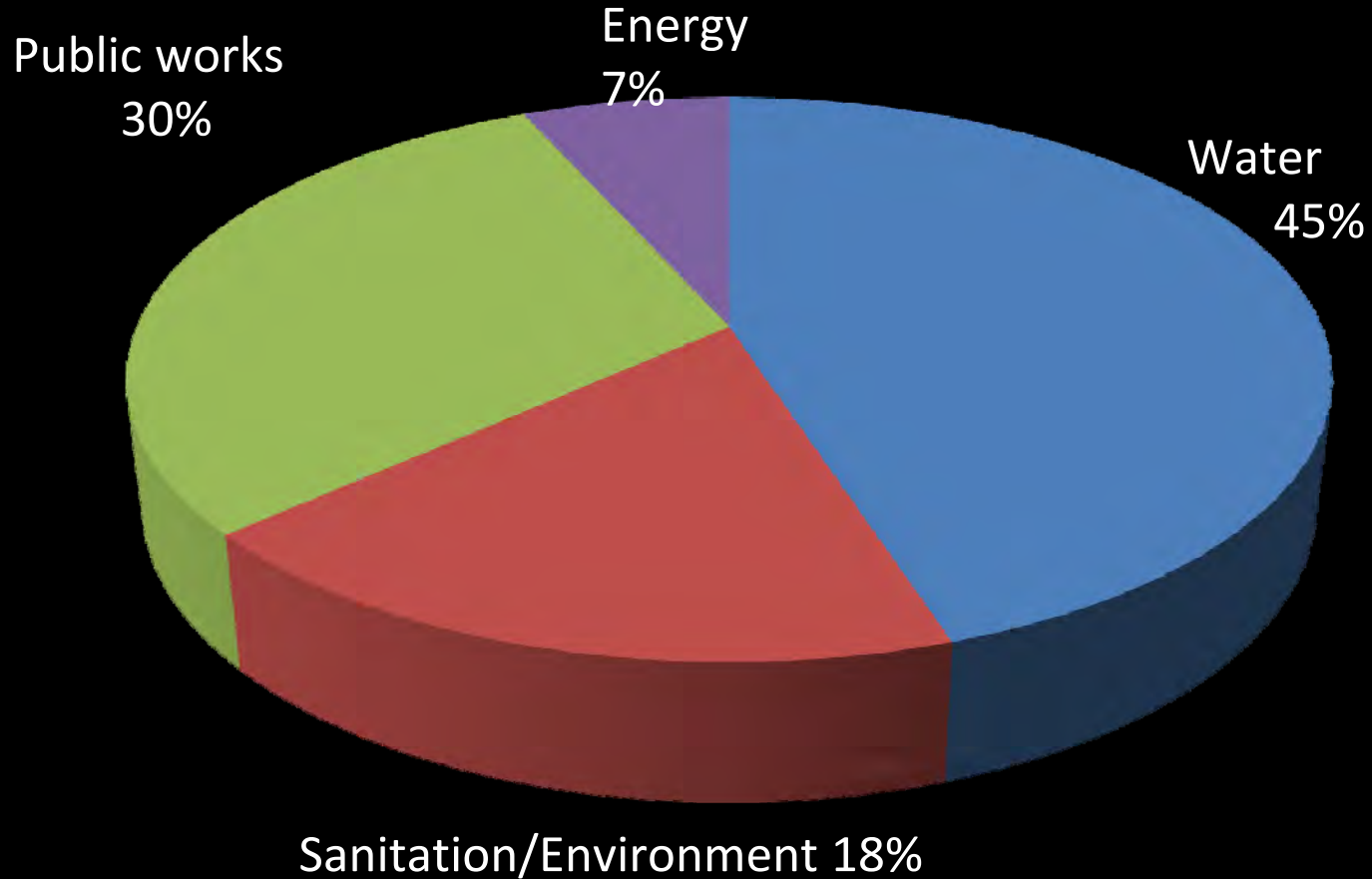


Student rapidly employed in Africa

Evolution of Employment Rate of 2iE's Graduated Students

Year	2007	2008	2010
3 months after graduating	87%	83%	81%
6 months after graduating	93%	97%	92%
12 months after graduating	100%	100%	100%

Distribution area of employment: 2010



2iE : Sustainable partnership with Private Sector





2iE Incubating new African enterprises





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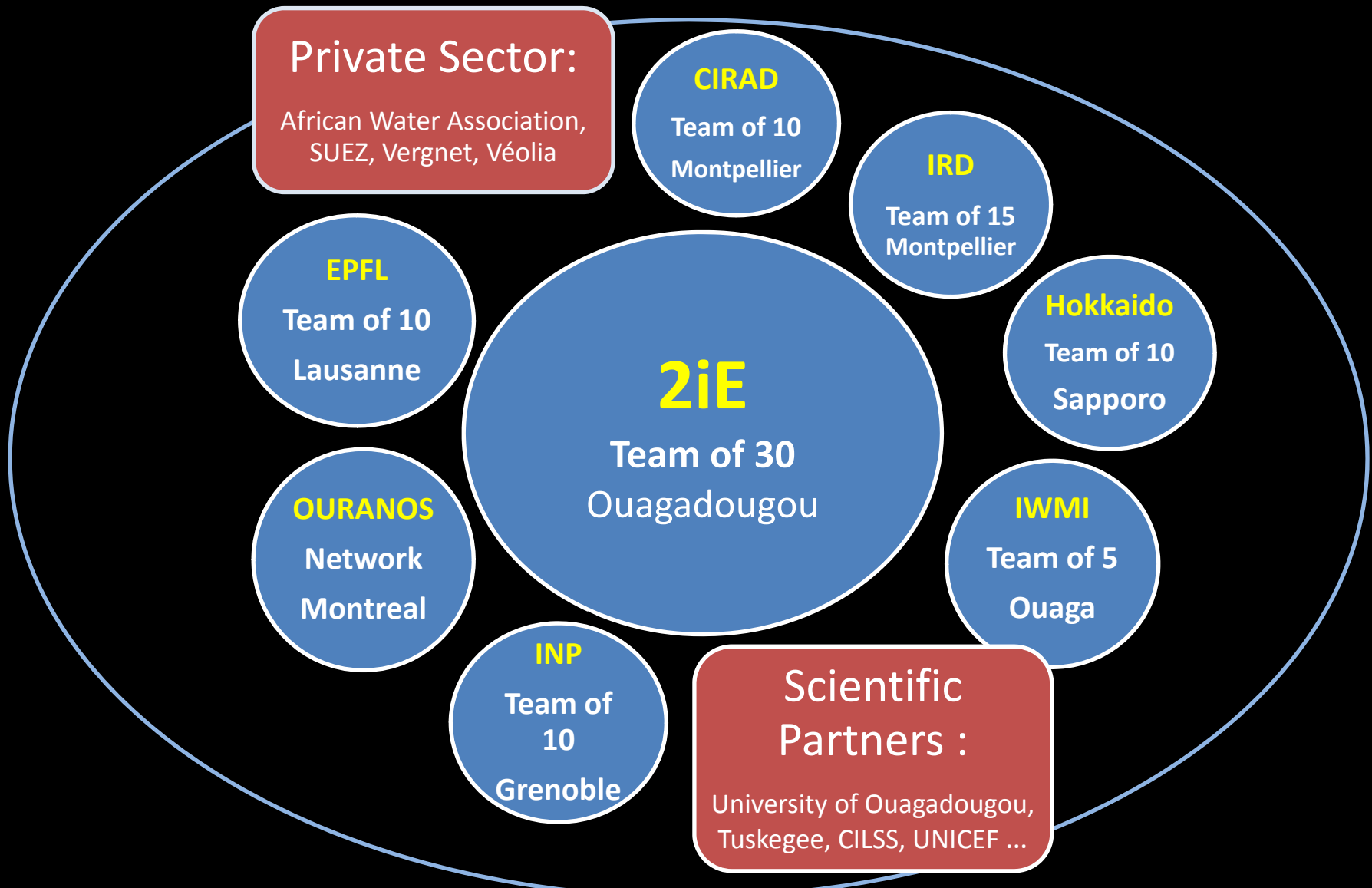
Research at 2iE

Doing research for development

Organizing 2iE as Common and Open Centers

1. Research Center on Water and Climate
2. Research Center on Sustainable Energy and Habitat
3. Center on Innovation and Social Entrepreneurship
4. E-Center
5. International Doctoral Program

The 2iE Research Center on Water and Climate

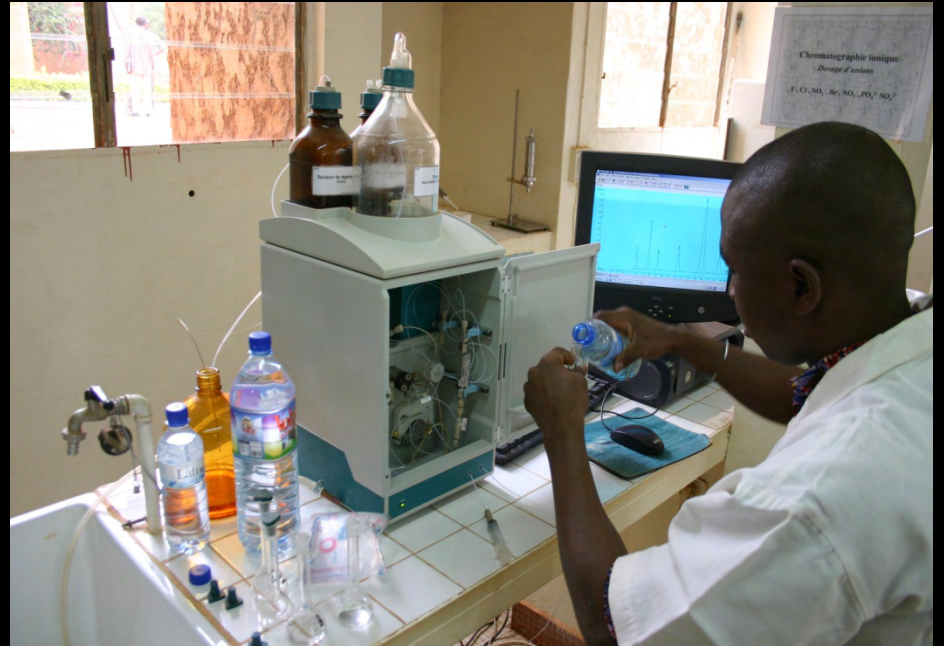


Laboratory of Pollution Control, Water Treatment Eco-Health in Tropical Climate (LEDES)

- ☞ Surface and Ground Water Pollution Assessment and impacts on Health and environment
- ☞ Water and Wastewater treatment and re-use in agriculture
- ☞ Innovative technologies for water supply and sanitation to underprivileged areas

2iE: Research on waste water treatment





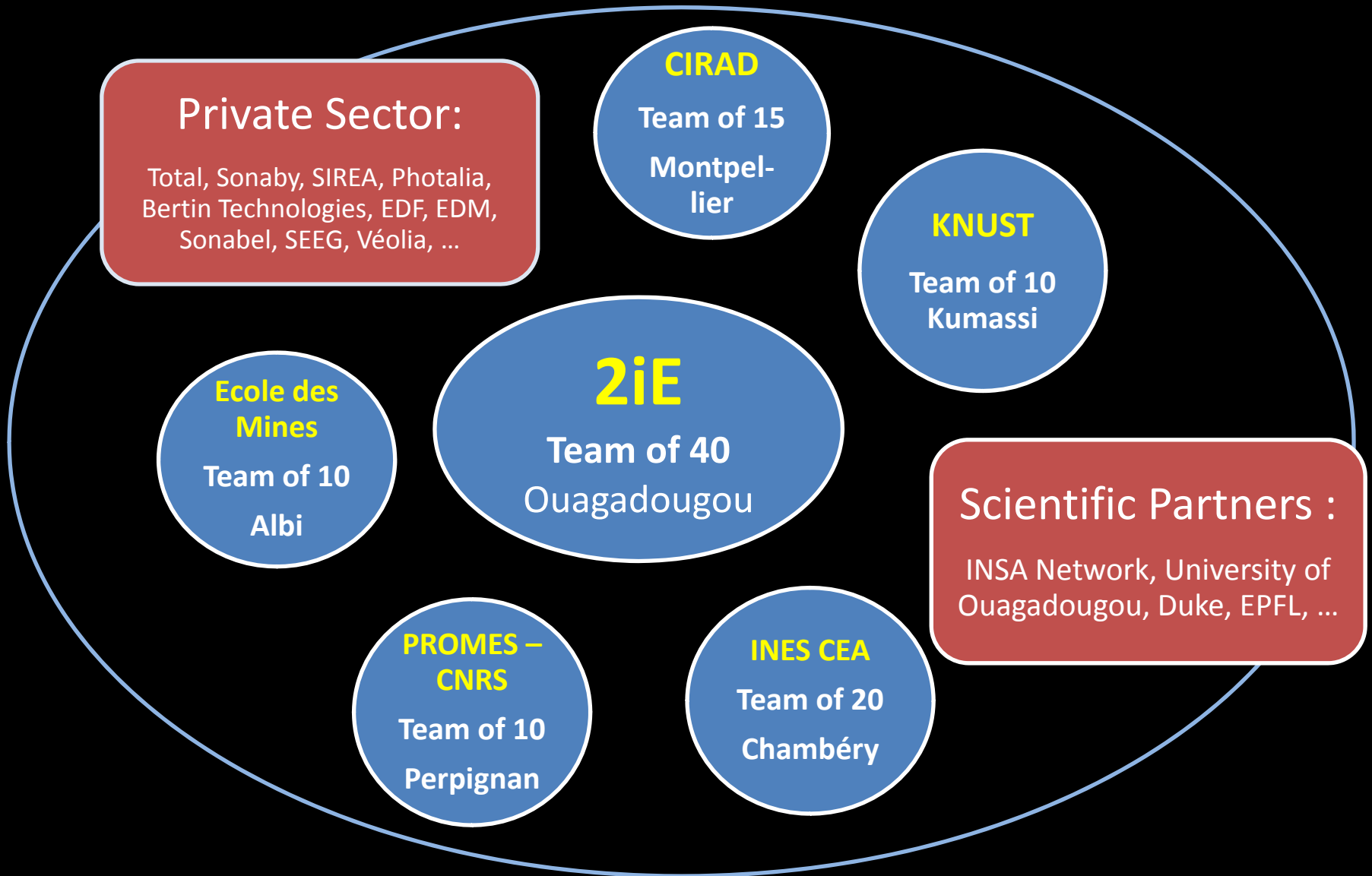
Laboratory of eco-hydrology and Water resources management in Sub-Sahara Africa(LEAH)

- African Monsoon Multidisciplinary analyses (AMMA): *Water cycle at local scale; Land surface processes; Human processes and food security; Climate change impacts on Water resources*
- Soils hydrodynamics regimes for water economy in irrigated agriculture in Sub-Saharan Africa
- Groundwater assessment for water supply in the West Africa area

2iE/LEAH: Research on land reclamation



The 2iE Research Center on Sustainable Energy



Laboratory of Solar Energy and Energy Savings (SEESL)

- Accurate assessment of the solar resource and energy needs in Africa
- Concentrating solar power plants (CSPP)
- Bioclimatic architecture & Solar PV / thermal (low temperature) Systems
- Optimal design and thermodynamic optimization of energy systems & Energy Efficiency



Solar PV field
2.85 KWp



Diesel generator
11.5 KVA

Pilot of « Flexy Energy »

Laboratory of Biomass Energy and Biofuels (LBEB)

- Alternative energy for rural areas: biomass and bio-fuel, thermochemical conversion
- Adaptation of gasoline engines to vegetal oils
- Esterification of vegetal oils to biofuels
- Activated carbon for water and waste treatment



2iE/LBEB: Research on Biofuels

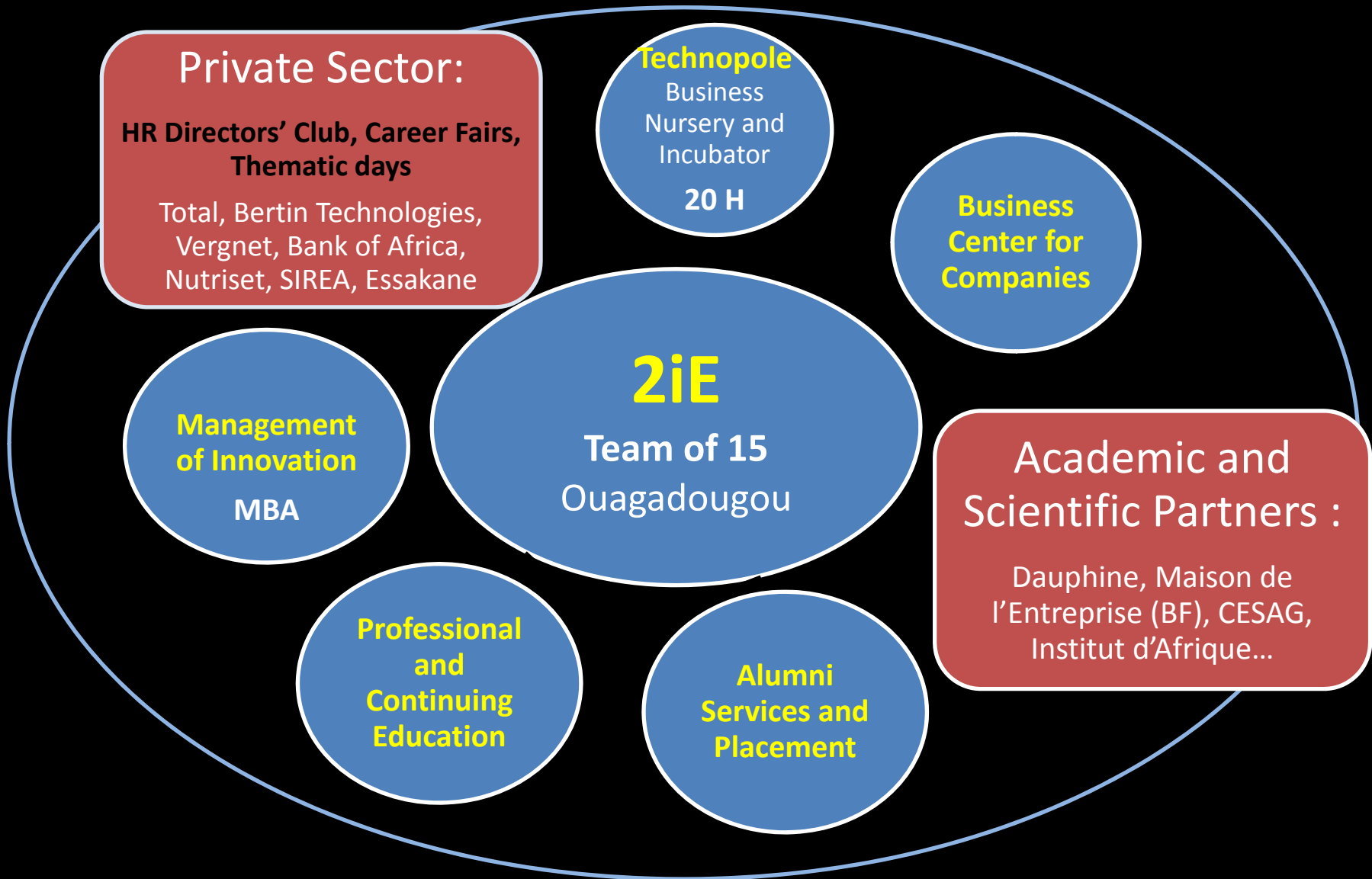




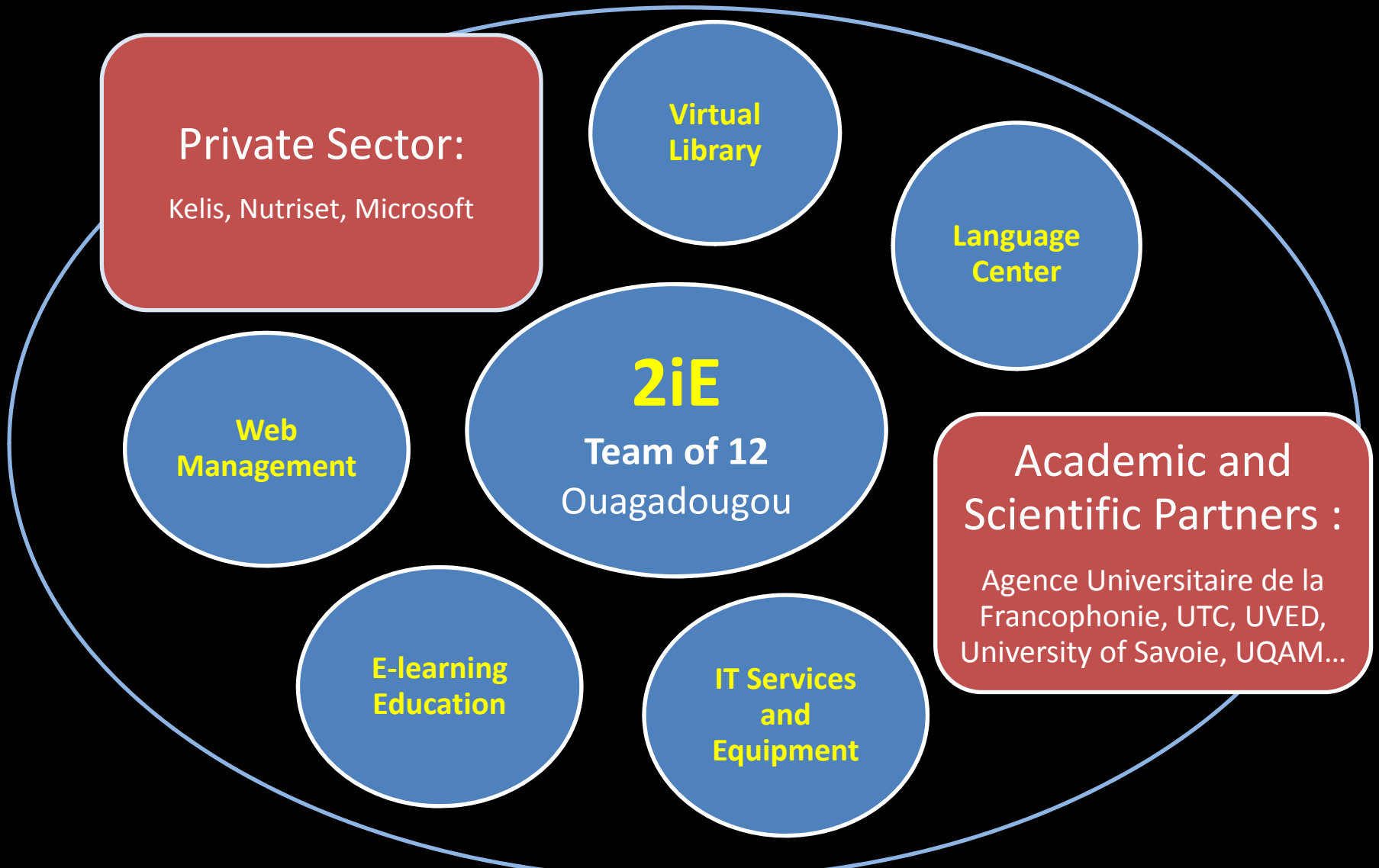
Laboratory of Eco-Materials and Construction (LEMC)

- Life cycle of local materials in construction works/ innovative technologies using local materials
- Sustainable cities: sustainable management of urban areas and transport

2iE Center for Innovation and Entrepreneurship



2iE e-Center



Private Sector:

Kelis, Nutriset, Microsoft

Virtual
Library

Language
Center

2iE

Team of 12
Ouagadougou

Web
Management

Academic and
Scientific Partners :

Agence Universitaire de la
Francophonie, UTC, UVED,
University of Savoie, UQAM...

E-learning
Education

IT Services
and
Equipment

Thank you for your attention

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