- ETAP -

Escuela Técnica de Agua Potable

a Program of Agua Para La Vida

Fifth class: 2010 -2012

Intermediate Report

*From **May 2010** to **October 2011***

CONTENT

Surveying and column construction

SUMMARY

After 18 months, ETAP fifth class is really making good progress. The theoretical bases are now really well understood. The students are now able to make a full survey, to map, to draw with AutoCAD, to design the mainline and the water tank by themselves. They are currently learning to design the network distribution system. They are making good progress in the field as well. Unfortunately, one student was not able to maintain the required level of proficiency and left the program after 6 months. At the end of October 2011, the expenditures are around $3,300 less than planned. We will finish to pay the buiding in December 2011.

According to those results, the training will be fully completed at the end of July 2012: 7 new ETAP water and sanitation technicians will be ready to work as professionals.

I - RENEWAL OF INATEC ACREDITATION

In 2011, ETAP had to renew its approval by INATEC, the National Institute of Technology in Nicaragua. Furthermore, the Institute changed its form of requisites, asking for an extensive description of our curriculum.

We succeeded in completing the required information. This process allowed us to formalize some natural and positive evolutions of the curriculum.

The education curriculum is described in the appendices, and includes:

- 5 main skills areas
- 14 modules

The modules are separated in different skill fields; each skill field represents a 'professional profile'.

II - 2010 - 2012 CLASS PROGRESS

2.1 The recruitment

The recruitment of the 2010 - 2012 class was carried out during the period of February 23–26, 2010:

47 applicants came, 30 completed the exam and individual interviews and finally 8 were selected.

The incoming class began on May 11, 2010. Unfortunately, one student was not able maintain the required level of proficiency and left the program after 6 months. As a result, the 2010-2012 class currently has 7 students.

2.2 Current Course Progress

After 18 months, the course progress is the following.

	Completion
Theorical part	75%
Practical part (without profesional training)	70%
Practical part (including profesional training)	41%
TOTAL CLASS (without profesional training)	**75%**
TOTAL CLASS (including profesional training)	**63%**

The table below shows the percentage of estimated time required for each module actually spent to date.

Modules	Total hours	Completion
Mathematics	**350**	**100%**
Computing	**300**	**85%**
Technical communication	**160**	**65%**
Land-surveying and Mapping	**260**	**100%**
Materials	**80**	**65%**
Physics and Hydraulics	**300**	**100%**
Technical Drawing	**50**	**100%**
Design of water catchments	**150**	**25%**
Design of water supply systems	**400**	**65%**
Operation diagnosis and maintenance	**50**	**50%**
Field practices	**900**	**70%**
Rural sanitation	**80**	**80%**
Project development	**120**	**5%**
Other components of integral project	**50**	**80%**
Professional training	**640**	**0%**

→ Four modules are fully completed with a total of 960 hours (**Mathematics**; **Land surveying and mapping**, **Physics and Hydraulics**, **Technical drawing**).

→ The **Computation** module is on going: drawing (AutoCAD) is fully completed; excel, word and PowerPoint skills are now only reinforced, the design on 'Air in pipes program' (conduction pipeline design) and 'Abridge program' (bridge design) is completed; the students are now learning the 'Neatwork program' (network design); the computation module will end with the use of internet.

→ The **Technical communication** module is going on: they understand the communication process and they have raised significantly their level of writing and oral communication ; they are now practicing technical reports, making presentations and community trainings; the module will end with professional communication (writing professional mail, résumé, job applications)

→ The **Materials** module has been partially done: the water and sanitation materials (pipes, PVC materials...etc) part is completed ; the concrete part is partially done and needs to be finished.

→ The **Design of water catchments** module is on going: the base is set up with the general knowledge on water sources and water quality parameters; the water treatment part is on going; the module will be fully completed with pumps and catchments methods.

→ The **Design of water supply systems** module is on going: design of the conduction pipeline, water tank and the method for crossing obstacles are completed ; the design of the distribution network, water stands and the norms are on going.

→ The **Operation diagnosis, maintenance and sustainability** module has been initiated : the legal aspects with the new Nicaraguan water committees (CAPS) law have been studied in depth in class and finalized with the participation of the students to an INAA training on CAPS ; technical and social issues of water projects sustainability need to be completed.

→ **Fields practices** are going on : for the technical part, they have been able to learn about spring catchments, main pipeline construction, pipes connection, underground crossings, suspension bridge assembling, water tank construction; they need more practice on network construction, water stands, valve and meters installation and latrines construction; the students also participated actively in CAPS trainings in various areas such as technical, health, social or environment training; still missing are practice in drilling, and some companies visits.

→ The **Rural sanitation** module has almost been completed: general issues, diseases transmission and prevention, and basic rural sanitation have been fully seen; the module will end with a short complement to rural sanitation and reinforcement of the general knowledge.

→ The **Other components of the integrated project** module have been well advanced: students have been working with APLV promoters on social issues such as 'community leadership', 'self-esteem' ; on health issues such as 'hydric diseases', 'basic sanitation'; on environmental issues such as 'source and catchments protection', 'agro-forestry systems' and 'tree nursery'. Those themes have been seen with a community training approach. Themes such as 'catchments protection' and 'water system maintenance' will be worked on.

→ The **Project development** module needs to be done as well as the three months **Professional training** on next year APLV projects.

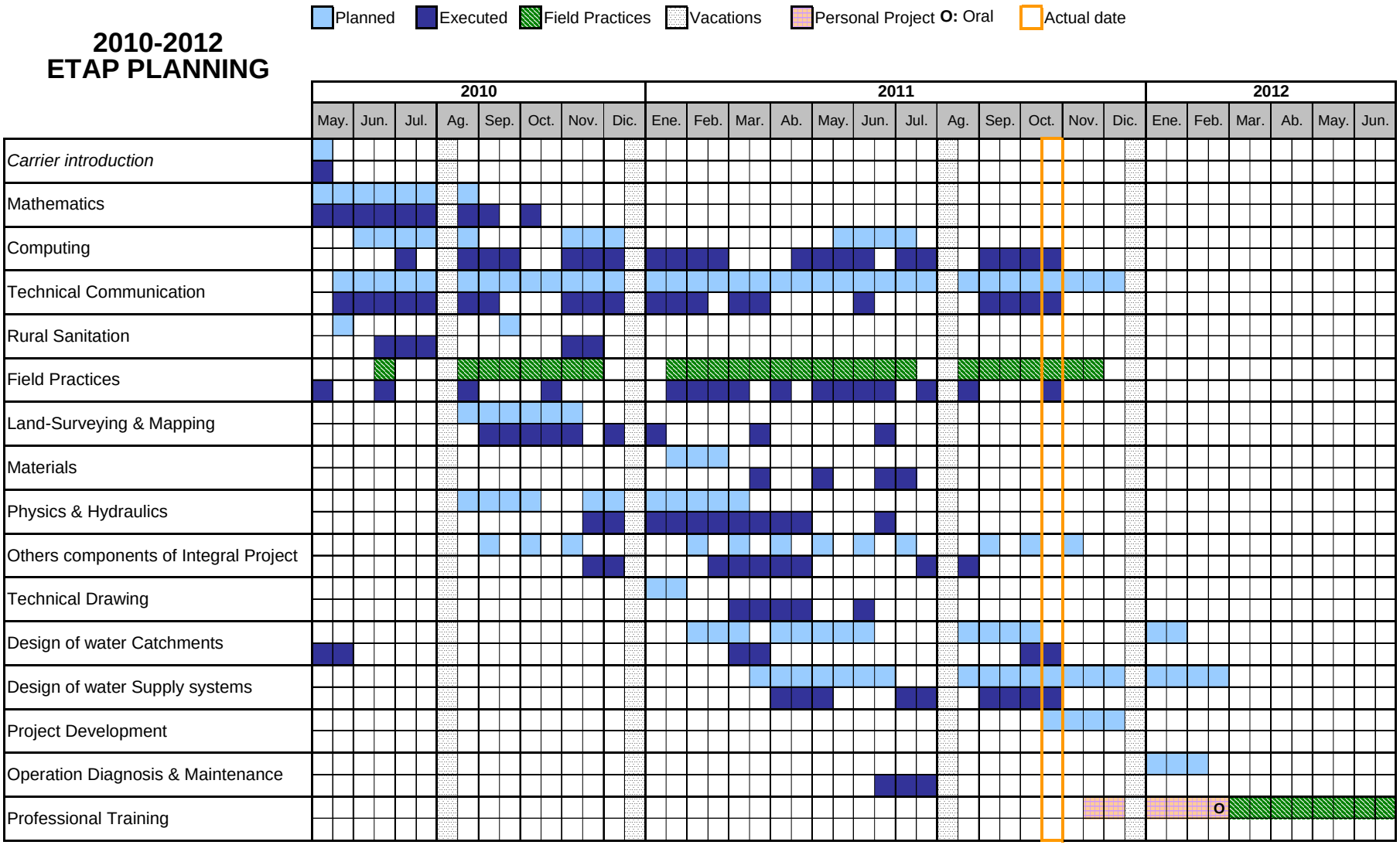
2.3 Planning monitoring

The planning monitoring is detailed on the next page.

We plan to complete the theoretical part at the end of march 2012, one month later than initially planned: 20 weeks remain before the Professional Training starts which should be the right amount of time to complete the 800 hours of theory and field practices.

2010-2012 ETAP PLANNING

Planned | Executed | Field Practices | Vacations | Personal Project **O:** Oral | Actual date



Field Practices

Land-Surveying, suspension bridge columns construction, spring water flow measurement, pipes connection

Assembling meters, assembling suspension pipe bridge, constructing water tank

III - INTERMEDIATE FINANCIAL REPORT

After 18 months, we can say that the budget has been respected. It was originally planned as $41,996 (corrected budget with one student less and without the rent as we bought the building) during that period and we actually spent 38,675 U$. We realized an economy of 3,321 U$.

Main reasons for this economy are :

1. The teachers decided to remain during their holidays in Nicaragua rather than flying back to Europe : it saved 1,500 U$.
2. It has not been possible to install internet at the school (no new ports available) till now. There was planned 50 U$ per month for internet, that is to say 900 U$ (18x50).

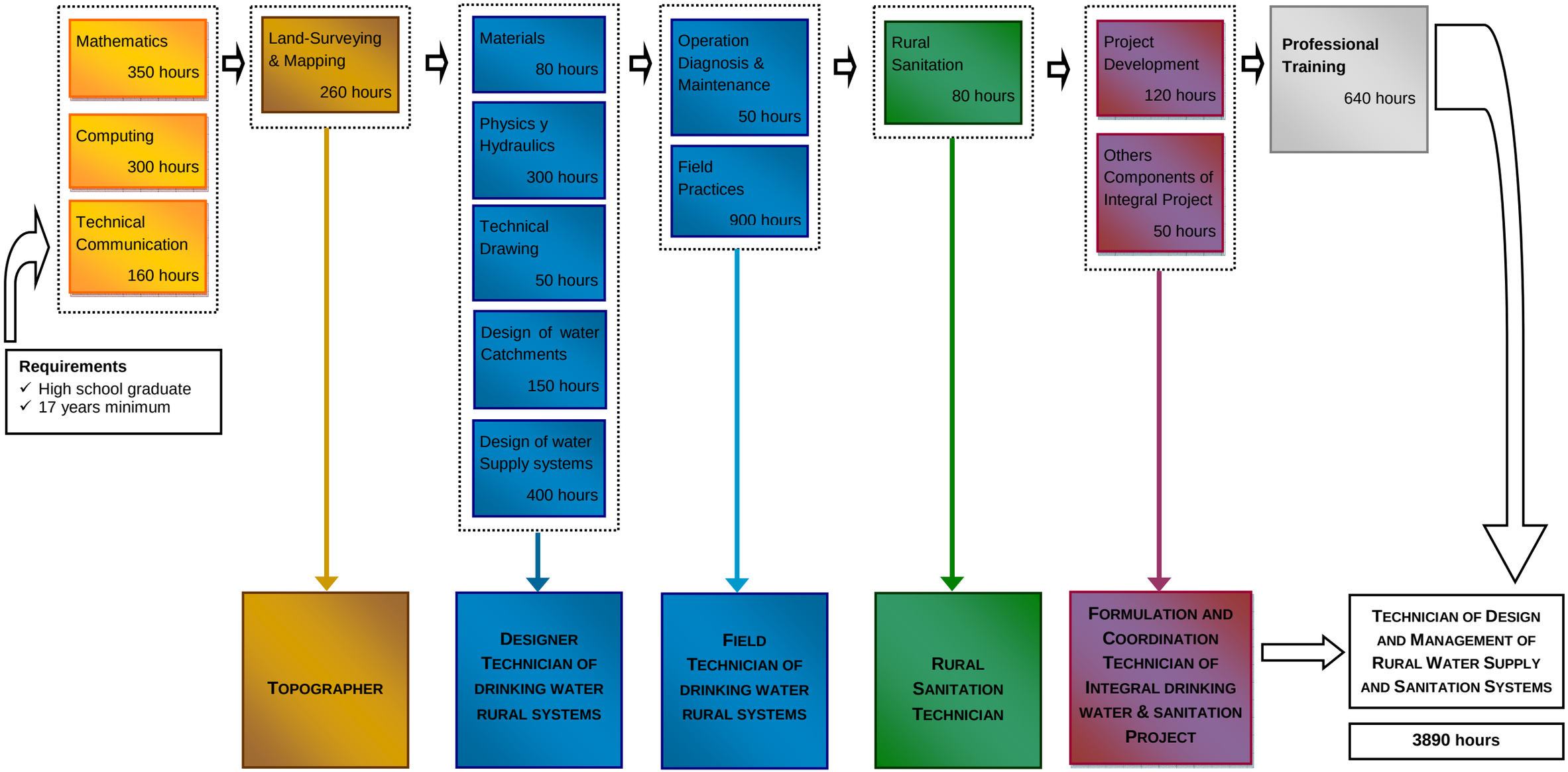
We think that we will finish slightly below the original budget.

ETAP budget

	May to December 2010 8 months		January to October 2011 10 months		TOTAL	November 2011 to June 2012 8 months		TOTAL
	Planned	Executed	Planned	Executed		Planned	Executed	
Teachers (salaries, travel expenses…)	$8,796	$8,428	$9,539	$7,243		$7,002		
Students (food, travel expenses, fees…)	$6,415	$5,661	$7,118	$7,164		$6,029		
Didactic material (stationery, books…)	$1,377	$1,318	$394	$445		$353		
School building expenses (electricity, water, phone…)	$1,730	$1,200	$1,527	$1,097		$1,390		
Maintenance (building, computers…)	$937	$762	$1,002	$1,356		$752		
Investment (buying new equipment)	$1,661	$2,847	$1,500	$1,117		$0		
Fundraising and next graduating class recruitment	$0	$34	$0	$3		$200		
TOTAL PLANNED	$20,916		$21,080		$41,996	$15,726		$57,722
TOTAL EXECUTED		$20,250		$18,425	$38,675			
DIFFERENCE PLANNED-EXECUTED					$3,321			

IV - APPENDICES

4.1 Curriculum



4.2 Modules, Skills and Content

MODULES	SKILLS	CONTENT
Mathematics	➔ MASTER BASIC MATHEMATICS TOOLS	I. Mathematics definitions, sets and numbers II. Measurement units III. Basic algebra IV. Calculation methods V. Fractions VI. Basic geometry VII. Perimeters, Areas, Volumes VIII. Equations IX. Proportionality X. Powers XI. Pythagoras y Trigonometry XII. Graphics XIII. Statistics XIV. Errors
Computing	➔ USE OF A COMPUTER AND TRAINING WITH THE PROGRAMS NECESSARY TO DESIGN AND EXECUTE A PROJECT	I. Computer tools to present data (Excel, Word, PowerPoint) II. Computer tools to draw and document water systems (AutoCAD, ErViewer, MapSource…) III. Computer tools to design water systems (Aire en Tuberías, Neatwork, aBridge) IV. Computer tools to look for information (Internet)
Technical Communication	➔ TECHNICAL COMMUNICATION METHODS AND TOOLS	I. Understanding the communication process II. Reaching a high level of written and oral communication III. Knowing how to write a technical report and how to make an oral presentation IV. Understanding professional communication

MODULES	SKILLS	CONTENT
Land-Surveying and Mapping	SURVEYING, PROCESSING TOPOGRAPHICAL DATA AND MAPPING TOOLS FOR READING AND MAKING MAPS	I. Theoretical Land-Surveying II. Practical Land-Surveying III. Mapping
Materiales	MATERIALS AND THEIR CHARACTERISTICS	I. Materials used in water and sanitation project II. Concrete use in water and sanitation works
Physics & Hydraulics	PHYSICS OF FLUIDS AND SOLIDS BEHAVIOR	I. Speed and acceleration II. Forces, moments and statics III. Work, Energy and Power IV. Hydrostatics V. Hydrodynamics
Technical Drawing	TECHNICAL DRAWING AS A TOOL FOR DESIGN	I. Drawing standards II. Overview and perspective drawings III. Dihedral system
Design of water Catchments	WATER CATCHMENTS DESIGN	I. Knowing the different types of water sources, their advantages, drawbacks and vulnerability II. Water quality parameters and water treatment solutions III. Spring catchments method IV. Subterranean water catchments methods V. River catchments methods

Modules	SKILLS	Content
Design of water Supply systems	➔ WATER DISTRIBUTION SYSTEM DESIGN	I. Design of the conduction pipeline for a gravity flow water system (before the water tank) II. Design of the distribution network for a gravity flow water system (after the water tank) III. Design of the water tank and other components of the systems IV. How to cross obstacles V. INAA standards (Nicaragua) for water systems
Operation Diagnosis & Maintenance	➔ OPERATIONAL DIAGNOSIS, PROBLEMS RESOLUTION AND PREVENTIVE ACTIONS	I. Systems technical diagnosis II. Problems resolution III. Preventive actions
Field Practices	➔ PRACTICAL MASTERY OF ALL THE STEPS OF THE PROJECT EXECUTION PHASE	I. Practice of all activities directly under the water and sanitation technician responsibility II. Practice of activities that are part of other components of a water and sanitation project: hygiene & health, environment, community organization. III. Complementary technical practices (treatment plants and special projects outings)
Rural Sanitation	➔ RURAL SANITATION	I. Introduction to sanitation II. Diseases linked to water and sanitation: transmission and prevention III. Adequate human feces disposal: rural latrines IV. Grey water and solid waste disposal : rural adapted solutions

Modules	SKILLS	Content
Project Development	➔ PROJECT DEVELOPMENT	I. Accountability II. Writing project proposals
Others components of Integral Project	➔ COORDINATION OF ALL COMPONENTS OF AN INTEGRAL WATER AND SANITATION PROJECT	I. Objectives and tasks of a social promoter II. Objectives and tasks of an hygiene and health promoter III. Objectives and tasks of an environmental promoter IV. Importance and key points of a good coordination with the others components of an integral project
Professional Training	➔ EXPERIENCE AND RESPONSABILITY	Full time four months experience in the field on implementing projects

4.3 Contacts

AGUA PARA LA VIDA www.aplv.org	aplv@aplv.org
Gilles Corcos, Executive and Technical Director 70 bis, rue Notre Dame des Champs 75006 Paris, FRANCE	gilcorc@gmail.com (33) 1 46 33 47 63 (33) 4 76 45 19 36
Charlie Huizenga, Treasurer 2311 Webster Street, Berkeley, CA 94705, USA	(1) 510-914-1988 charlie@aplv.org
Carmen González, Nacional Coordinador Managua, NICARAGUA	(505) 89 01 60 77 carmen@aplv.org
Cecilia Santonja & Denis Barea, ETAP Teachers & Principals, Río Blanco, NICARAGUA	(505) 84 95 35 35 etap@aplv.org