

SUMMARY

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IV - Action Plan

All these diagnosis are aimed to understand the constraints with which will be confronted the development of the five new irrigated perimeter s' 10,600 ha in the northwest. This development should be able to secure the agreed investments return. In order to solve those constraints and shortfalls, a preliminary draft of proposed solutions was drawn up : integrated solutions taking into consideration hydraulic resources integrated management concepts, and participative solutions involving all the concerned parts in the solutions identifications and execution. This preliminary draft was the object of the final report temporary version. It was also presented in three regional seminar held from 18 to 20/04/2005 in Jendpouba, Beja and Bizerte, and a national reconstruction seminar held in Sidi Thabet INFPAA in the 22/04/2005

This seminar allowed to reach a consensus on the Action Plan s' guidelines which are presented below. Taking into consideration all the relevant observations expressed during the four workshops, the different adopted solutions were detailed during the work sessions held at three levels:

- at the national level with beneficiaries and popularizers
- at the regional level with CRDA responsables, Tobacco Control, AFA departments, northwest PRRD and BTS and BNA representations
- at the central level with the DG/FIOP, DG/EDA, DG/PA, AVFA, IRESA responsables

This development of actions realization practical conditions allowed determining the necessary budgets to check the financing possibilities on the State budget. When the latter can not bear the firsts, they will be proposed to the different backers financing contributing in Tunisia and among them the JBIC

IV.1 - Guidelines of responses to be brought to the constraints

All the responses to be brought to all the constraints will be listed as depicting their objectives, activities, contributor and implementation strategy. All the Presidential electoral platform decisions can be guidelines for the Action Plan to be proposed as a response to the observations and recommendations of the mid-term evaluation mission as well as the constraints diagnosis that is perfectly within the framework of the first presidential decision.

It will be, in particular, clarified if these responses form or don't form a part of the different concerned institutions and organizations usual tasks, and thus can or can not be financed on the functioning national budgets.

IV.1.1 - Responses to technical control, organization and coordination problems

a) Guidelines of responses to technical control, organization and coordination problems

Three presidential measures will allow solving the technical control problems at medium term:

- To establish the alternating training in order to ensure the appropriateness of the institutes, schools and northwest CFPA programmes with the irrigated perimeters plots beneficiaries, and to perfect the link between theoretical and practical training.
- To include the notion of quality as a basic subject in the programmes of the different training systems

- To include the notion of the ability to export as a basic subject in the programmes of the different training systems

As a supplement to this national policy and to improve the development and perpetuate the projects technical components, several specific action guidelines will allow establishing a better coordination and communication between the different contributors.

The involvement of the GICs from the setting in water and the definitive official acceptance of works is desirable.

The extension of the beneficiaries groups activities will allow to better serve the common interests of all the beneficiaries : actual GICs and then GDAs in the near future.

Coordination and communication between networks manager (GIC, CRDA, SECADENORD) and farmers seem also necessary. A coordination between the project team that supervised the works and the team that will ensure the installations exploitation (GIC, CRDA and SECADENORD exploitation and maintenance) is necessary for a best installations management. This coordination could be done through transfer meetings between the two parts. For example, the integration of the Project Unit team s' some members in the networks exploitation through the GIC is desirable when it's possible. In addition, the GIC can then invite to their meetings members from the maintenance and exploitation services teams, either belonging to the SECADENORD or the CRDA.

The organization of farmers around the shared hydrants which are shared by several irrigators, can be done as envisaging their training on these collective hydrants management aspects as well as the collective fitting out with water- saving facilities

The strengthening of the different regional and national technical support services will make them able to well conduct and vary their technical support mission. The best coordination obtained between their contributions will make easy reaching the expected results.

Finally, the reinforcement of the equipment maintenance capacities at the level of the pumping out (SECADENORD), the adduction networks (CRDA) and the distribution networks (GIC's) will give to the beneficiaries the possibility to develop permanently the investments realized by the tunisian State as offering solutions to ensure exploitation permanence and irrigation facilities maintenance.

IV.1.2 - Responses to land problems

a) **Land situation during the setting in water**

The diagnosis showed that actual land situation is characterized by the presence of several non viable exploitations for which water development will be difficult : self-financing capacity lack, ineligibility to agricultural loan...

Diagram n°IV-1 of page IV-3 compares the distribution of the exploitations (farms) in the five irrigated perimeters according to the concerned land types (state-owned or private) with the whole perimeters situation and that of Tunisia.

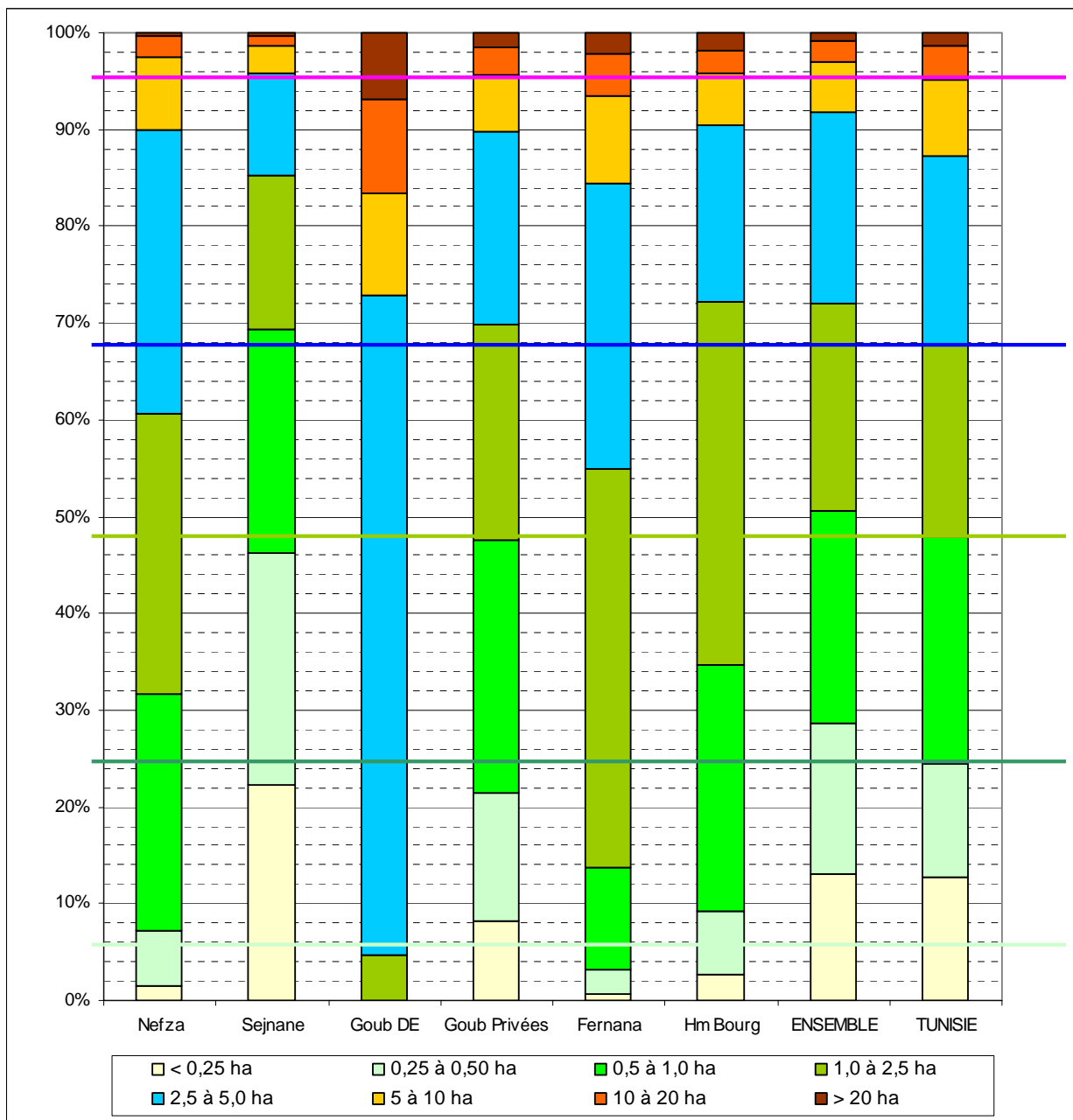


Diagram n°IV-1 : Distribution of beneficiaries by SAU stratum

It's noticed that the situation is variable according to the irrigated perimeters and the concerned lands type. If Nefza, Fernana, and Hammam Bourguiba perimeters and the private lands of Goubellat are close from the average situation in Tunisia:

- Sejnane perimeter is much more divided up
- Goubellat State-owned lands which are divided up into S%MVDA and into "Technician" and "Young farmers" plots are clearly less divided up.

Diagram n°IV-2 of page IV-4 compares the SAU distribution in the five irrigated perimeters by exploitation type according the concerned lands type (State-owned or private) with the whole perimeters situations and that of Tunisia.

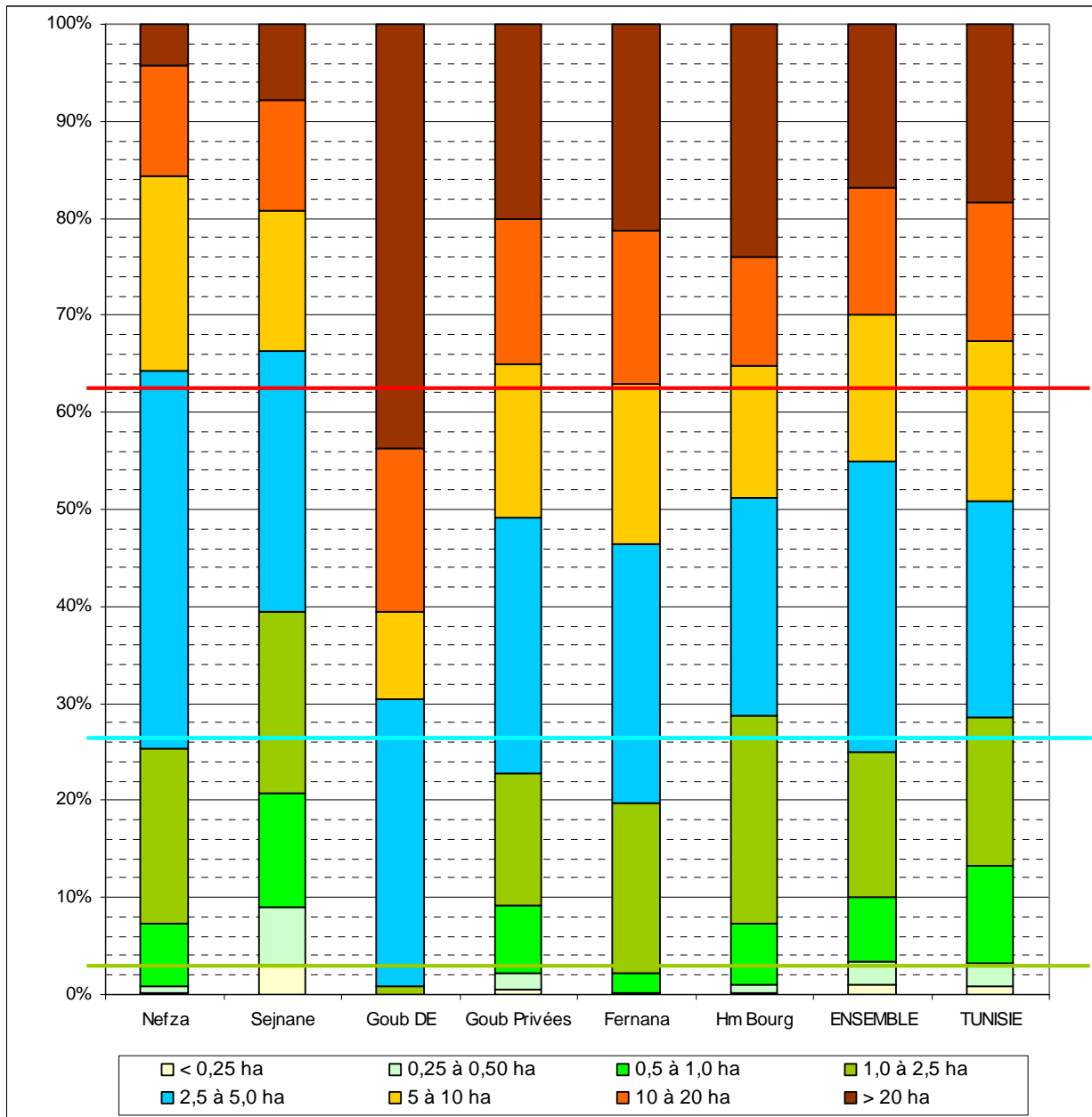


Diagram n°IV-2 : Distribution of the beneficiaries SAU by SAU stratum

It's noticed that the situation is less critical at the level of the SAU where only 25% totally equipped corresponds to SAU exploitations lower than 5 ha against 28 % for the whole Tunisia, with:

- a minimum of 1% for Goubellat perimeter State-owned lands
- a maximum of 40% for Sejnane perimeter

For those non -viable exploitations, the development is likely to be problematic through lack of financing capacities and eligibility to agricultural loans.

b) Responses guidelines to land problems

Three presidential measures will allow solving land problems at medium term:

- To consolidate the agricultural land loan financial resources for:

1. young farmers
 2. Agronomy diploma holders
- To ensure gradually the extension of small and average plots surfaces in order to ensure their economic viability which will guarantee for them an effective inclusion in the economic process as hastening the drawing up of the legal background proper to encourage:
1. the coexploitation
 2. the exploitation through a long-term lease
- To fight against the dispersal of land property as:
1. solving the joint ownership problems which are usually bad exploitation even lands abandonment source
 2. intensifying the improvement rate of these land problems by the Agricultural Land Agency by offering the means to accelerate its land reform plans.

The implementation of this land improvement national policy at the level of the arranged lands by the Projects will lie in several specific actions guidelines.

IV.1.3 - Responses to the beneficiaries concerns

In order to reduce the fears toward the success (technical, but also financial) of the new irrigation practice called in the previous JBIC evaluation reports “**weak cultural acceptability**”, it should have to succeed to guarantee the levels and the possibilities of irrigated productions distribution and sale in order to prompt farmers to intensify their production and livestock farming systems as expressing growing requests for irrigation practice in the arranged perimeters.

a) Important quantities of vegetal productions to market or to transform

We will, first of all, seek to update the expected production levels in a cruising year taking into consideration all the brought physical potentialities into play. These data could be used by future evaluation missions as productions objectives to be reached.

a.1) A strong evolution of the directly marketable productions

Table n°IV-1 below shows the actual productions distribution on the irrigated perimeters arranged lands by the tree JBIC Projects

Table n°IV-1 : Actual pluvial productions on irrigated perimeters arranged lands

| Current productions (T) in | Nefza | Sejnane | Goubellat | Fernana | Hamman Bourguiba | TOGETHER |
|----------------------------|-------|---------|-----------|---------|------------------|-----------------|
| Citrus fruits | 320 | 0 | 0 | 0 | 0 | 320 |
| Other fruits | 840 | 0 | 0 | 45 | 17 | 902 |
| Olive trees | 60 | 20 | 120 | 150 | 80 | 430 |
| Cereals | 1,050 | 800 | 1,300 | 1,100 | 400 | 4,650 |
| Leguminous plants | 800 | 470 | 0 | 160 | 73 | 1,503 |
| Tobacco | 40 | 70 | 0 | 4 | 23 | 137 |

One can compare now these initial pre-setting in water productions with cruising year situation under irrigation

In view of these initial productions of 1.220 tonne of fruits and 430 tonne of olives, **Table n°IV-2** below shows the distribution of 40.000 tonne of fruits produced in cruising year on the five irrigated perimeters arranged by the three JBIC Projects.

Table n°IV-2 : Expected fruit productions in cruising year in the five irrigated perimeters

| Cruising productions (T) of | Nefza | Sejnane | Goubellat | Fernana | Hm Bourguiba | ENTIRETY |
|-----------------------------|-------|---------|-----------|---------|--------------|--------------|
| Walnut tree | 0.0 | 0.0 | 0.0 | 15.0 | 13.3 | 28.3 |
| Pear tree | 2,879 | 3,871 | 305 | 990 | 761 | 8,806 |
| Apple tree | 2,879 | 3,871 | 305 | 990 | 761 | 8,806 |
| Peach tree | 0 | 0 | 1,633 | 0 | 0 | 1,633 |
| Citrus fruits | 3,354 | 2,100 | 0 | 959 | 0 | 6,413 |
| Apricot tree | 0 | 0 | 2,848 | 0 | 0 | 2,848 |
| Pomegranate tree | 0 | 7,452 | 1,987 | 0 | 0 | 9,439 |
| Oil olive tree | 0 | 0 | 0 | 204 | 107 | 311 |
| Table olive tree | 0 | 0 | 0 | 828 | 659 | 1,487 |

We notice that these fruits will represent a total production of 19,250 tons of sensitive fruits that might be stocked in cold storage rooms, 12,250 tons of hardy early or late fruits, 6,400 tons of citrus fruits and 1,800 tons of olives.

In the same way, in view of initial productions of 40650 tonne of cereals, 10500 tonne of leguminous plants and 140 tonne of Tobacco, **Table n°IV-3** below shows the expected irrigated large-scale cultivations productions levels in cruising year on the five perimeters.

Table n°IV-3 : Expected irrigated field crops productions in cruising year on the five irrigated perimeters

| Cruising productions (T) of | Nefza | Sejnane | Goubellat | Fernana | Hm Bourguiba | ENTIRETY |
|-----------------------------|-------|---------|-----------|---------|--------------|--------------|
| Wheat | 919 | 1,947 | 2,050 | 531 | 332 | 5,779 |
| Barley-grain | 470 | 143 | 223 | 62 | 178 | 1,076 |
| Oats | 355 | 157 | 304 | 47 | 0 | 863 |
| Triticale | 554 | 953 | 745 | 233 | 324 | 2,809 |
| Leguminous plants | 794 | 887 | 907 | 214 | 124 | 2,926 |
| Tobacco | 553 | 915 | 0 | 225 | 220 | 1,913 |

One can notice that these productions - henceforth guaranteed thanks to irrigation – will really represent in total cereal productions doubling, and a doubling of Leguminous plants productions and a multiplication by 14 of Tobacco production with introduction of new Virginia tobacco light cigarettes varieties.

Finally, in absence of initial productions, **Table n°IV-4** of page IV-7 shows the expected truck farming productions levels in cruising year on the five perimeters

Table n°IV-4 : Expected truck farming productions in cruising year on the five irrigated perimeters

| Cruising productions (T) of | Nefza | Sejnane | Goubellat | Fernana | Hm Bourguiba | ENTIRETY |
|-----------------------------|-------|---------|-----------|---------|--------------|---------------|
| Late fall potato | 8,238 | 6,435 | 11,291 | 3,124 | 1,020 | 30,108 |
| Carrot | 2,154 | 2,019 | 1,615 | 516 | 334 | 6,638 |
| Turnip | 2,154 | 2,019 | 1,615 | 0 | 334 | 6,122 |
| Green onion | 2,584 | 2,423 | 1,939 | 619 | 407 | 7,972 |
| Garlic | 0 | 1,010 | 0 | 258 | 0 | 1,268 |
| Vegetables with leaves | 0 | 7,211 | 0 | 619 | 0 | 7,830 |
| Broad bean in green | 1,077 | 447 | 833 | 0 | 185 | 1,465 |
| Strawberry | 0 | 1,867 | 0 | 857 | 0 | 2,724 |
| Tomato | 8,971 | 1,111 | 7,383 | 2,574 | 1,661 | 21,700 |
| Pepper | 627 | 439 | 615 | 187 | 113 | 1,981 |
| Melon | 3,573 | 1,853 | 2,458 | 355 | 399 | 8,638 |
| Watermelon | 1,233 | 898 | 983 | 441 | 363 | 3,918 |

One can notice that these new productions will henceforth represent 30,100 tons of late season potatoes, 31,300 tons of other winter market gardening, 21,700 tons of tomatoes and 17,300 tons of other summer truck farming cultivations

In addition to these entirely new truck farming productions, **Table n°IV-5** below shows the distribution of the authorized production increases on the five irrigated perimeters arranged by the three JBIC Projects.

Table n°IV-5 : Productions volume increase afetr setting in water of the five irrigated perimeters

| Cruising productions (T) of | Nefza | Sejnane | Goubellat | Fernana | Hm Bourguiba | ENTIRETY |
|-----------------------------|---------|----------|-----------|---------|--------------|-----------------|
| Citrus fruits | + 3,034 | + 2,100 | 0 | + 959 | 0 | + 6,093 |
| Other fruits | + 4,918 | + 15,194 | + 7,078 | + 1,950 | + 1,518 | + 30,658 |
| Olive trees | - 60 | - 20 | - 120 | + 882 | + 686 | + 1,368 |
| Cereals | + 1,248 | + 2,399 | + 2,022 | - 227 | + 434 | + 5,876 |
| Leguminous plants | - 6 | + 417 | + 907 | + 54 | + 51 | + 1,423 |
| Tobacco | + 513 | + 845 | 0 | + 221 | + 197 | + 1,776 |

Table n°IV-6 below shows the increase percentage of the productions other than truck cultivations on the irrigated perimeters arranged by the three JBIC Projects

Table n°IV-6 : Productions proportion increase after the five irrigated perimeters setting in water

| Cruising productions (T) of | Nefza | Sejnane | Goubellat | Fernana | Hm Bourguiba | ENTIRETY |
|-----------------------------|----------|----------|-----------|----------|--------------|-----------------|
| Citrus fruits | + 948% | new | - | new | - | + 1,904% |
| Other fruits | + 585% | new | new | + 4,333% | + 8,931% | + 3,399% |
| Olive trees | abandon | abandon | abandon | + 588% | + 857% | + 318% |
| Cereals | + 119% | + 300% | + 155% | - 21% | + 108% | + 126% |
| Leguminous plants | - 1% | + 89% | new | + 34% | + 70% | + 95% |
| Tobacco | + 1,282% | + 1,207% | - | + 5,525% | + 856% | + 1,297% |

a.2) Fodder productions strong evolution

While the private farmers current livestock are essentially fed on the forests paths and hydromorphic prairies, **Table n°IV-7** of page IV-8 shows the expected irrigated large-scale cultivations productions levels in cruising year on the five irrigated perimeters arranged by the three JBIC Projects.

Table n°IV-7 : Expected irrigated fodder productions in cruising year on the five irrigated perimeters

| Cruising productions (T) of | Nefza | Sejnane | Goubellat | Fernana | Hm Bourguiba | ENTIRETY |
|-----------------------------|--------|---------|-----------|---------|--------------|---------------|
| Barley in green | 4,398 | 9,114 | 3,850 | 2,741 | 1,396 | 22,241 |
| Bersim | 15,932 | 21,954 | 13,261 | 9,433 | 3,126 | 60,602 |
| Vesce-Oats hay | 1,742 | 2,416 | 1,505 | 759 | 357 | 6,472 |
| Vesce-Oats silage | 0 | 0 | 7,589 | 0 | 0 | 7,589 |
| Fodder sorghum | 16,434 | 30,774 | 18,361 | 11,732 | 4,883 | 77,767 |

One can notice that these productions-henceforth guaranteed thanks to irrigation-will really represent in total 168,200 tons of silage equivalent to about 25.9 millions of UF, and 6,500 tons of hay equivalent to around 3.3 millions of UF.

b) Important quantities of animal productions to market or to transform

b.1) The appearance of an important integrated milk cattle farming

These 29.2 millions of UF would enable to supply more than 11,700 UZB during a cruising year, almost for “double purpose farming” type (milk and meat) envisaged in order to reduce the milk quantity to market. This total strength will be distributed between the five perimeters as indicated in **Table n°IV-8** below, which was drawn up according to differential productivity levels linked to the technical capacities of the farmers concerned with cattle farming.

Table n°IV-8 : Dimensioning of UZB cruising numbers in the five irrigated perimeters

| Cruising numbers(UZB) for | Nefza | Sejnane | Goubellat | Fernana | Hm Bourguiba | ENTIRETY |
|----------------------------|-------|---------|-----------|---------|--------------|---------------|
| Production UF rough (M.UF) | 6.55 | 10.76 | 7.40 | 2.51 | 1.99 | 29.22 |
| Unit needs /UZB (UF) | 2,380 | 2,500 | 2,740 | 2,380 | 2,140 | 2,490 |
| Nombre d'UZB | 2,750 | 4,300 | 2,700 | 1,050 | 930 | 11,730 |

According to these double-purpose breeding zoo technical parameters, **Table n°IV-9** below shows the numbers of each cattle type in cruising year on the five irrigated perimeters arranged by the three JBIC Projects

Table n°IV-9 : Numbers by cattle type in cruising year in the five irrigated perimeters

| Cruising numbers (heads) for | Nefza | Sejnane | Goubellat | Fernana | Hm Bourguiba | ENTIRETY |
|------------------------------|-------|---------|-----------|---------|--------------|---------------|
| Cows | 2,750 | 4,300 | 2,700 | 1 050 | 930 | 11,730 |
| Bulls | 138 | 215 | 135 | 53 | 47 | 588 |
| Replacement heifer | 570 | 860 | 540 | 210 | 190 | 2,370 |
| Young bulls | 1,190 | 1,640 | 1,030 | 400 | 350 | 4,610 |
| Calves (female) | 1,240 | 1,940 | 1,220 | 470 | 420 | 5,290 |
| Calves (male) | 1,240 | 1,940 | 1,220 | 470 | 420 | 5,290 |

In the actual situation, Nefza and Sejnane breeders have Sejnane yoghurt-maker that has a capacity to receive daily 4.000 L which are actually used only at the quarter. Goubellat breeders have Tunis and cape-Bon milk stations that have a total capacity to receive daily 800,000 L.

As to the existant livestock markets, **Table n°IV-10** of page IV-9 presents their actual weekly activity volume.

Table n°IV-10 : The 4 concerned livestock markets actual activity volume and size

| Livestocks market for | Nefza | Sejnane | Goubellat | Fernana | ENTIRETY |
|---------------------------|------------|------------|------------|------------|---------------|
| Surface (m ²) | 10,000 | 2,654 | 8,000 | 10,000 | 30,654 |
| Management mode | Concession | Concession | Concession | Concession | |
| Activity day | Wednesday | Thursday | Tuesday | Sunday | |
| Total weekly activities | | | | | |
| Cattle | 15 | 10 | 8 | 400 | 433 |
| Ovine | 100 | 50 | 40 | 600 | 790 |
| Caprine | 150 | 80 | 15 | 500 | 745 |
| Equine | 2 | - | 6 | 300 | 308 |

According to these double purpose breeding production norms, **Table n°IV-11** below presents the expected animal productions in cruising year on the five irrigated perimeters arranged by the the three JBIC Projects

Table n°IV-11 : Expected cattle productions in cruising year in the five irrigated perimeters

| Cruising productions(T) for | Nefza | Sejnane | Goubellat | Fernana | Hm Bourguiba | ENTIRETY |
|-----------------------------|--------------|---------------|--------------|--------------|--------------|---------------|
| Milk (000 l) | 9,900 | 15,480 | 9,720 | 3,780 | 3,350 | 42,230 |
| Reform cows (heads) | 540 | 850 | 530 | 210 | 180 | 2,310 |
| Reform bulls (heads) | 27 | 43 | 27 | 10 | 9 | 116 |
| Young bulls (heads) | 1,040 | 1,410 | 890 | 340 | 300 | 3,980 |
| Calves (female) (heads) | 650 | 1,050 | 660 | 250 | 220 | 2,830 |
| Total cattle heads | 2,257 | 3,353 | 2,107 | 810 | 709 | 9,236 |

The 10.800 ha arranged in irrigated perimeters by the three JBIC Projects will lead to an annual milk production estimated to be almost 42 M.L, ie 4% of the actual national production. The marketing of 9.200 livestock on the hoof is 1,3% of increase compared to the 687,000 cattle head negotiated annually.

b.2) The marketing problems of these new bovine productions

In order to well visualize distribution and sale problems by perimeter, **Table n°IV-12** below presents cattle productions in the five perimeters related to:

- average daily values for milk production
- average weekly values for livestock sale

Table n°IV-12 : Expected cattle productions in cruising year in the five irrigated perimeters

| Cruising productions for | Nefza | Sejnane | Goubellat | Fernana | Hm Bourguiba | ENTIRETY |
|-----------------------------------|--------|---------|-----------|---------|--------------|----------------|
| Daily milk (l /d) | 27,100 | 42,380 | 26,610 | 10,350 | 9,170 | 114,930 |
| Reformed livestock (weekly heads) | 10.9 | 17.2 | 10.7 | 4.2 | 3.6 | 44.4 |
| Young bulls (weekly heads) | 20.0 | 27.1 | 17.1 | 6.5 | 5.8 | 73.1 |
| Calves (female) (weekly heads) | 12.5 | 20.2 | 12.7 | 4.8 | 4.2 | 51.5 |

The efforts to be fulfilled in order to make the beneficiaries assured consist in joining the capacities of collecting, distribution and sale, and transformation with those production levels. In order to have an idea about these efforts concerning milk collecting, **Table n°IV-13** of page IV-10 presents the increase proportions of transformation capacities to ensure:

- in Beja to collect the produced milk in Nefza, Fernana and Hamam Bourguiba perimeters.
- In Sejnane to collect the produced milk in Sejnane perimeter
- In Tunis and Cap Bon to collect the produced milk in Goubellat perimeter

Table n°IV-13 : Increase of milk collecting and transformation activity

| Activity of livestock market of | Beja | Sejnane | Tunis and Cap-Bon | ENTIRETY |
|--|--------|----------|-------------------|----------------|
| Weekly Total | | | | |
| Milk transformation capacity (l /d) | 80,000 | 4,000 | 800,000 | 884,000 |
| Milk transformation actual level (l /d) | 60,000 | 1,000 | 720,000 | 781,000 |
| Available capacity (l /d) | 20,000 | 3,000 | 80,000 | 103,000 |
| link additional production /available capacity | 233.1% | 1,412.7% | 33.3% | 106.9% |

One can notice that the available transformation capacity can satisfy 90% of the additional milk production by the five perimeters arranged by the three JBIC Projects. But geographical distributions is different even if a large part of the produced milk in Sejnane can be collected for dairy stations of Beja, Tunis or even the Cap Bon.

In the same way, and in order to have an idea about the sales of livestock on the hoof, **Table n°IV-14** below presents the increase proportions of the activity volumes relative to the four concerned livestock markets:

- in Nefza to sell livestock fed on Nefza perimeter
- in Sejnane to sell livestock fed on Sejnane perimeter
- in Goubellat to sell livestock fed on Gboubellat perimeter
- in Fernana to sell livestock fed on Fernana and Hamam Bourguiba perimeters .

Table n°IV-14 : Actual activity volume of the four concerned livestock markets

| Activity of livestock market of | Nefza | Sejnane | Goubellat | Fernana | ENTIRETY |
|--|----------|----------|-----------|---------|----------------|
| Act cattle heads weekly sales | 15 | 10 | 8 | 400 | 433 |
| 5 perimeters cattle heads weekly sales | 43 | 64 | 41 | 30 | 178 |
| Increase of sales by market | + 289.7% | + 644.8% | + 507.2% | + 7.3% | + 41.0% |

Finally, the livestock on the hoof marketing will certainly oblige to size again livestock markets in Sejnane and Goubellat, when Nefza and Fernana have already a livestock market able to deal with livestock coming from the concerned perimeters , but :

- Sejnane perimeter is not very far from the most active province livestock market, that is Mateur market where is sold weekly 2,000 cattle
- Goubellat perimeter is not very far from the most active livestock market of Tunis, that is Ellouhoum society market where is sold weekly more than 1,600 cattle.

c) Important financing needs for subsidies

Furthermore, obtaining these productions will require strong subsidies needs increase for the 4,500 persons the three projects will be beneficial to, and that within the framework of the state encouragement to save water and to agricultural development. In Fact, they will account for 27.3 M.DT for five years.

The two tables below present these contributions allocation year by year, the Table n° IV-15 of the page IV-10 according to the farmer type, and the Table n° IV-16 of the page IV-11 per perimeter. The three main types of farmers have been brought together during the study of the PACFS:

- ◆ Subcategories B1, B2 and C : large type of “middle and big farmers” ;
- ◆ Subcategories A0 and A1 : large type of “small farmers in the economic sight” ;
- ◆ Subcategories A2, A3 et A4 : large type of “small farmers in the social sight”.

Table n° IV-15: Subsidies needs annual allocation per large type farmer

| MLT financing | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | TOTAL |
|------------------------|------------------|------------------|------------------|------------------|----------------|-------------------|
| BNA | 4 895 198 | 4 862 462 | 2 398 495 | 0 | 0 | 12 156 155 |
| BTS | 2 900 562 | 3 702 535 | 3 702 535 | 2 036 152 | 0 | 12 341 785 |
| Associations de crédit | 302 412 | 569 057 | 569 057 | 711 321 | 693 438 | 2 845 285 |
| TOTAL | 8 098 171 | 9 134 054 | 6 670 088 | 2 747 473 | 693 438 | 27 343 225 |

Table n° IV-16: subsidies needs annual allocation per perimeter

| MLT financing | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | TOTAL |
|---------------|------------------|------------------|------------------|------------------|----------------|-------------------|
| Nefza | 1,523,858 | 2,191,083 | 1,952,661 | 882,113 | 122,534 | 6,672,250 |
| Sejnane | 2,012,472 | 2,957,897 | 2,639,484 | 1,352,420 | 491,977 | 9,454,250 |
| Goubellat | 3,396,878 | 2,348,541 | 684,073 | 44,708 | 26,825 | 6,501,025 |
| Fernana | 663,265 | 927,075 | 785,662 | 247,678 | 14,421 | 2,638,100 |
| Hm Bourguiba | 501,698 | 709,458 | 608,208 | 220,555 | 37,681 | 2,077,600 |
| TOTAL | 8,098,171 | 9,134,054 | 6,670,088 | 2,747,473 | 693,438 | 27,343,225 |

The CRDA's of the 3 governorats have to fastly inform about the amounts they are going to raise during five years in favour of the 4,500 beneficiaries of the three projects : 9.5 M.DT at Bizerte, 13.2 M.DT at Beja et 4.7 M.DT at Jendouba.

d) Important needs in credit financing

Getting those productions will indeed require a strong increase in annual loans and investment and campaign credits needs of the three projects 4,500 beneficiaries. The investment loans will be 36,8 M.DT, out of five years and the stock financing loans 21,9 M.DT.

d.1) Breakdown of these financings by loan institution

We saw that the BNA will use its own funds for 4.862 farmers as regards investment loans, that means 45% of the beneficiaries, and for 3,220 farmers as regards campaign credits that is 30% of the beneficiaries, it can consider it creditworthy once they are in the irrigated production system and who will offer sufficient guaranties. Consequently, it will intervene only respectively in 16.3 M.DT and 6.4 M.DT, that is to say 44% and 29% of the global needs.

The BTS will have also to finance:

- directly 4,886 beneficiaries for investment loans amounts equal to 16,6 M.DT and 4,886 other beneficiaries for campaign credit amount of 5,2 M.DT, that is respectively 45% et 45% of the global needs
- Through the OOONG financing, 1,116 beneficiaries for investment loans amount of 3,9 M.DT and 2,758 beneficiaries for campaign credit amount equal to 5,6 M.DT, that is respectively 11% et 25% of global needs

d.2) Breakdown of these financings year by year

The 2 tables below present the break down of those different contributions year by year, the Table n°IV-17 of the page IV-11 for medium and long term investment credits that are entirely refundable in about fifteen years, and the Table n°IV-18 of the page IV-11 for short term countryside credits that will be reinvested every year after recovery..

Table n°IV-17 : Annual break down of investment credits needs

| MLT financing | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | TOTAL |
|---------------------|-------------------|-------------------|------------------|------------------|----------------|-------------------|
| BNA | 6,480,356 | 6,510,570 | 3,285,498 | 0 | 0 | 16,276,424 |
| BTS | 3,882,898 | 4,994,752 | 4,994,752 | 2,776,772 | 0 | 16,649,175 |
| Credit associations | 415,197 | 784,627 | 784,627 | 980,784 | 957,900 | 3,923,135 |
| TOTAL | 10,778,451 | 12,289,949 | 9,064,878 | 3,757,556 | 957,900 | 36,848,734 |

Table n°IV-18 : Annual break down of countryside credits needs

| Additional financing in CT | 1st year | 2 nd year | 3rd year | 4th year | 5th year and the followings |
|----------------------------|-------------------|----------------------|-------------------|-------------------|-----------------------------|
| BNA | 4,082,939 | 4,880,389 | 5,454,552 | 5,939,401 | 6,379,593 |
| BTS | 4,446,663 | 5,879,477 | 7,272,764 | 8,626,526 | 9,881,473 |
| Credit associations | 1,765,445 | 2,914,385 | 3,783,096 | 4,525,704 | 5,604,586 |
| TOTAL | 10,295,047 | 13,674,250 | 16,510,412 | 19,091,631 | 21,865,653 |

Year by year breakdown of countryside credits additional needs is 10,3 M.DT during the first year, 3,4 M.DT the second year, 2,8 M.DT the third year, 2,6 M.DT the fourth year and finally 2,8 M.DT in the fifth year.

The different involved financing organizations should be rapidly informed about the amounts they should make available for the three projects 4,500 beneficiaries.

e) Responses guidelines to the beneficiaries concerns

Four presidential measures will allow solving at medium term the problems to calm down the beneficiaries concerns in order to obtain really the potential objectives of a quite fast production, then to guarantee the distribution and sale in order to ensure the return of this irrigated agriculture:

- to carry out a study relative to irrigation water pricing and propose solutions in that field in order to reconcile the hydraulic projects return with farmers activities return;
- to arrange the slope lands sensitive to erosion and located around and inside the perimeters as consolidating them by productive plantations for protecting the facilities carried out by the projects and ensure the sustainability of the activity;
- to evaluate the functioning of the actual pile plan - put into place for 20.000 farmers relative to the PACFS which represented before setting in water 90% of the 4.500 beneficiaries of the three JBIC Projects, and will still represent in cruising year 80% - in order to specify the loan financing strategy the most able to :
 1. promote the activities of those farmers category
 2. guarantee the payments to the involved financing institutions
- to ensure the distribution and sale of their productions on markets

This national policy put into place for the lands arranged by the Projects will consist in several specific actions guidelines that will allow improving the development of the means implemented thanks to the Tunisian State investments on JBIC financing as using for the best the supplying sources, cultivation techniques, transportation storage and transformation means, by providing satisfying technical conditions.

IV.2 - General action plan proposed for the three projects financing

In the following, there is a listing of the general priority actions to be put into place in order to solve all the problems raised for the optimum hydraulic development of the 10,800 ha that were realized within the framework of TS-P7, TS-P11 and TS-P13 projects.

IV.2.1 - General actions proposed for the financing that solves technical control and organizational problems

Actions 1-A : Training participants in the perimeters development, popularization and innovation for the perimeters durability

Action 1-A.01 : Satisfy practical and technical knowledge for the organization development, the production and quality of the perimeters products.

- Objective: to improve beneficiaries capacities to make profitable their farm, the popularizers to advice farmers and the GDA to manage farmer organizations.
- Targets :
 - The beneficiaries are organized in a target group of 12 persons. Every CRA and/or GDA is responsible to select a target group of about fifteen persons (in order to have an effective participation of 12 persons), this group is different for each training according to the participation or not to the last module and to the subject of the organized module.
 - The popularizers : one person per CRA
 - The GDA staff : 2 persons per GDA
- Planner : 3 years for the GDA’s and the popularizers and 5 years for the beneficiaries. Organizing a 5 years beneficiaries training will allow to concern more than 4,500 farmers that is about 80% of all the beneficiaries of the 5 perimeters.
- Places : The 6 CFPA’s (Center of agricultural professional training) of the three regions : Beja, Bizerte, Jendouba (see map I-2). The GDA staff of the 5 perimeters on the one hand and the popularizers of the 5 perimeters on the other hand will be gathered and constituted in one of the 6 training centers. The beneficiaries will be gathered according to the perimeter and will go to one of the two training centers of the gouvernorat they belong to as shown by the next table.

Table n° IV-19: Training places for the 5 perimeters beneficiaries

| Perimeter | CFPA Bousalem | CFPA Sidi Meskin | CFPA Testour | CFPA Thibar | CFPA El Alia | CFPA El Rimel |
|------------------|---------------|------------------|--------------|-------------|--------------|---------------|
| Goubellat | | | | | | |
| Nefza | | | | | | |
| Sejnane | | | | | | |
| Fernana | | | | | | |
| Hammam Bourguiba | | | | | | |

• Process :

A group of beneficiaries has to apply for a training either through the CRDA, in that case the training is financed by the State, or a farmer organization as the GDA, and in that case the training is financed by the farmers themselves. It’s also possible that the project stipulates a training budget so as to ensure its cost effectiveness. In the three cases, the process consists in establishing an agreement between the customers and the training centre (CFPA), elements which are set : the training term, the training lump sum by person, food and bedding if necessary, the tackled subjects, the transfers and their logistic. Generally, the trainings are either organized as Information day (JI) or as modules lasting 2 to 3 days.

The proposed training plan is organized around 4 general themes : Irrigation, irrigated agriculture, management, farmer organization. The subjects and the term are detailed in each theme. The chosen subjects and the assigned terms are determined according to demands observed on the field, necessary knowledge to practice an unusual irrigated agriculture in the Projects perimeters and the current tunisian agriculture gaps.

Table n° IV-20 : Themes, subjects, processes and training terms necessary for the GDA staff, the popularizers and the beneficiaries.

| Theme | Subject | GDA | Popularizers | Beneficiaries |
|---|------------------------------------|---------------|----------------|------------------|
| Irrigation | sizing and material choice | 3 days module | 3 days module | 3 modules 3 days |
| | dismantling and setting | | | |
| | maintenance | | | |
| | storage | | | |
| Field crops | soil preparation and seeds | | | 1 JI |
| | fertilisation/irrigation | | 1 JI | 2 days module |
| | fertilizers protection and weeding | | 1 JI | 1 JI |
| | harvest | | | 1 JI |
| Arboriculture | variety choice | | 3 days module | 3 modules 2 days |
| | plantation/formation | | | |
| | fertirrigation | | | |
| | fertilizers protection and weeding | | | |
| | harvest | | | |
| Truck farming | soil preparation and seeds | | 3 days module | 3 modules 2 days |
| | fertirrigation | | | |
| | fertilizers protection and weeding | | | |
| | harvest | | | |
| breeding | dairy cow breeding | | 1 JI | 2 days module |
| | food cow breeding | | 1 JI | 2 days module |
| Financial management | to hold an operating book | | 2 jours module | 2 days module |
| | GDA accounting | 3 days module | | |
| farmer organization | professional interest heightening | 3 days module | | |
| | commercial interest heightening | 2 days module | | |
| Price (Training + Transport to the CFPA) a year (DT) | | 2 500 | 3 000 | 60 500 |

The different participants training needs are :

- The irrigation techniques in the parcel by drench and the drip feed.
- Sizing of the irrigation networks per parcel ;
- The irrigation equipment by parcel ;
- The setting techniques on the irrigation equipments by parcel ;
- The located irrigation piloting : doses, every day irrigation time, the irrigation period, fertirrigation;
- The piloting leaching : utility, doses, frequency ;
- The irrigation cultivations practice : the knowledge of cultivation needs with mineral elements in order to have an appropriate fertilization, the control of the technical itinerary of the cultivations, the knowledge of the labour force needs concerning employed speculations, inform about the cultivations adaptation to regions and to different soils types;
- Dairy cows breeding practice in cowshed : to use adapted material and know nutritive needs to control rationing ;
- The bull calf breeding practice for fattening in cowshed : to know the nutritive needs to control rationing ;
- The financial management of the farm: accountancy realization in order to have a better control of the costs;
- The accounting management of the GDA's;
- Sensibilization for the producers to be organized around one path (fruits and vegetables, milk, meat) and/or geographic zone, it is essential to ensure lasting development of the projects perimeters given the current economic situation. The interest is professional : technical control, innovation follow-up, good quality production...and commercial : productions gathering within cooperatives and/or GDA to ensure a better production sale and a better farmers interests defense ;

Concerning the one year training calendar, the beneficiaries attention is maximum during determined farming interventions.

Table n° IV-21 : one year training calendar : hachured months correspond to the most propitious to training.

| Themes | Subject | janv | feb | march | april | may | june | july | august | sept | oct | nov | dec |
|---------------------|------------------------------------|------|-----|-------|-------|-----|------|------|--------|------|-----|-----|-----|
| Irrigation | sizing and material choice | | | | | | | | | | | | |
| | dismantling and setting | | | | | | | | | | | | |
| | maintenance | | | | | | | | | | | | |
| | storage | | | | | | | | | | | | |
| Field crops | soil preparation and seeds | | | | | | | | | | | | |
| | fertilisation/irrigation | | | | | | | | | | | | |
| | fertilizers protection and weeding | | | | | | | | | | | | |
| | harvest | | | | | | | | | | | | |
| Arboriculture | variety choice | | | | | | | | | | | | |
| | plantation/formation | | | | | | | | | | | | |
| | fertirrigation | | | | | | | | | | | | |
| | fertilizers protection and weeding | | | | | | | | | | | | |
| Truck farming | harvest | | | | | | | | | | | | |
| | soil preparation and seeds | | | | | | | | | | | | |
| | fertirrigation | | | | | | | | | | | | |
| | fertilizers protection and weeding | | | | | | | | | | | | |
| Breeding | harvest | | | | | | | | | | | | |
| | dairy cow breeding | | | | | | | | | | | | |
| Financial managemnt | food cow breeding | | | | | | | | | | | | |
| | to hold an operating book | | | | | | | | | | | | |
| farmer organization | GDA accounting | | | | | | | | | | | | |
| | professional interest heightening | | | | | | | | | | | | |
| | commercial interest heightening | | | | | | | | | | | | |

These different trainings will have to integrate women so as to concern an important part of the population. However, women proportion may be weak because the men farmers are those used to participate to these trainings. A purely feminine additional training could be useful especially concerning breeding operations (milking...) and food transformation.

- Implementation: Easy since farmers ask for the training.
- Urgency : High because the perimeters filling is already done and the basic initiation needs for irrigated agriculture are not satisfying.
- Importance : Very important :
 - To explain to the development participants of the perimeters how to organize, manage and practice the new agriculture, on the one hand.
 - To access to bank credits on the other hand. As a matter of fact, banks ask for agricultural training certificates to allow credits.
- Global Amount 319,000 DT:

Table n° IV-22: estimated detail of the allocated amount a year for the five perimeters.

| Amount in DT | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Total |
|----------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| GDA | 2 500 | 2 500 | 2 500 | | | 7 500 |
| Popularizers | 3 000 | 3 000 | 3 000 | | | 9 000 |
| Beneficiaries | 60 500 | 60 500 | 60 500 | 60 500 | 60 500 | 302 500 |
| Total | 66 000 | 66 000 | 66 000 | 60 500 | 60 500 | 319 000 |

Action I-A.02 : Applied agricultural research plans development

- Objective: to improve the agronomic performances of current cultivations and to adapt new cultivations to the perimeters regions.

- Targets : PRRD North-west, Research Stations of Metline, Sejnane, El Afareg, Oued Bejà, Ghardimaou, Koudiat-Bousalem, Ras Rajel (see map I-2), CTV de Goubellat, Nefza, Sejnane, Fernana, Aïn-Draham, .

- Planner : 5 years.

- Place : the 6 research stations and the 6 CFPA perimeters.

- Process :
 - To constitute an evaluation committee of irrigation beneficiaries demands
 - To establish annual plans of applied research to finance. Exemples :
 - To get the best stock (wild cherry sample of Aïn-Draham...) for the adaptation of the cherry tree to an intensive agriculture in Fernana.
 - To test biological agriculture: in arboriculture (irrigated olive tree...) or in truck farming subcover and in field to satisfy the increasing market of biological products.
 - To realize these tests in 0,25 to 0,5 ha parcels by means of 6 tests by perimeter : 3 three for each large type of cultivations (Field crops, Arboriculture and truck farming) with integrating one to two biological agriculture tests..
 - To establish annual plans of seeds multiplication, to finance.
 - To realize research and technology transfer to the application through the CTV's and the CFPA's to reach the implementation of novelties in favour with the farmers.

- Implementation : Easy, with the CTV's, the ULAP's, the research stations, the CFPA's and the farmers support.

- Urgency : Not for the time being, at first, current irrigated productions have to be launched in order to have afterward an adaptation and innovation demand from the beneficiaries.

- Importance : Important for the research and agricultural popularization to be better equipped to take up the challenge the agricultural sector is confronted with and thus provide the specific support needed by the intensification and the agricultural production diversification ;

- Global amount : 300,000 DT with 60,000 DT a year for the four perimeters.

Action I-A.03 : Reinforcement of the popularisation services

- Objective : To improve the popularizers work conditions in order to ensure an efficient technology transfer which makes the new speculations and the cost effectiveness optimisation easier.
- Target : Agricultural Training and Popularization Agency (AVFA), 3 CRDA's, 5 CTV's.
- Planner : 3 years.
- Place : Demonstration parcels by cultivation along the five perimeters
- Process : We can divide the global process into two steps from the most urgent to the less one.

➤ First step :

To equip the CTV's by computing means (Computers, printers, Telephone-fax)

To finance at least 4 tests by perimeter with 2,500 DT by test. These tests will have to be directly linked to the beneficiaries demand and organized according to annual plans.

One farmers group transfer (at least 12) toward demonstration parcels and that about 20 times a year.

➤ Second step :

To buy three vehicles by means of 25,000 DT by vehicle to improve farmers coverage by the popularizers. To obtain 3 more popularizers out of 3 years to ensure a more specific and complete popularization all the more because irrigated agriculture multiplies work opportunities in agriculture and requires specialized persons.

In other respects, it could be useful to involve the UTAP and the ONG to support the beneficiaries and for their informations gathering needs..

- Implementation : Easy, with the AVFA, the CTV's, the ULAP's and the present developing ONG's support..
- Urgency : High, because current means do not allow an appropriate agricultural popularization for the local economic development.
- Importance : Important for the realization of cost effective and reasoned agriculture.
- Global amount : 395,000 DT.

Table n° IV-23: Estimated detail allocated a year

| Amount in DT | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Total |
|---------------|---------------|----------------|---------------|---------------|---------------|----------------|
| Step 1 | 60 000 | 40 000 | 40 000 | 40000 | 40000 | 220 000 |
| Step 2 | | 100 000 | 50 000 | 25 000 | | 175 000 |
| Total | 60 000 | 140 000 | 90 000 | 65 000 | 40 000 | 395 000 |

Action I-A 04: Involving women in the perimeters development

- Objective: To answer to the own needs of women in the farm so as to improve their wellbeing and the incomes of rural families
- Target : women groups of 8 to 12 persons.
- Planner: 5 years.
- Place : the CTV which is a place that suits well the beneficiaries and the consulting office team. .
- Process : with the support of a consulting office or rural woman socioeconomic promotion office under agreement with DG/BTH that would pay them with its budget, with introducing the next themes :
 - The working out of a reference on the project zone s’ woman to better know her socio economic roles, her problems, her expectations and priorities.
 - The improvement of her knowledge and production techniques as developing her know-how .
 - The animation and the training in the appropriate and profitable technical innovations of the lasting agriculture.
 - Participating to, the programming, and the planning actions to be undertaken by women
 - The follow up of the actions effectively undertaken by women ;
 - The reinforcement of women access to popularization services.
 - The identification and the study of incomes-generating projects to rural women (their installation and supervision)
 - The implementation of visits and exchange plannings between women farmers of different regions in order to share their knowledges and personnal experiences on agriculture and beyond this point;
 - The organization of agricultural fairs that are usually a competition place where women can exhibit their products.
- Implementation : Easy, with the AVFA, the ULAP’s, the ULFT (Local Union of the Tunisian woman), The Rural Girl Training Center and the present developing ONG’s support
- Urgency : High, because the rural woman has specific needs and expectations and plays a very important role in the farm.
- Importance : Important, because the woman involmment makes her considered a complete social partner, improve her life conditions and thus the rural family life
- Global amount: 55,000 DT

Table n° IV-24: Estimated detail allocated a year

| Activity | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Total |
|---|---------------|---------------|--------------|--------------|--------------|---------------|
| The situation diagnosis and the working out of of a reference for the rural woman | 25 000 | | | | | 25 000 |
| Programmation and planning of the women actions | | 15 000 | | | | 15 000 |
| Follow up and evaluation | | | 5 000 | 5 000 | 5 000 | 15 000 |
| Total | 25 000 | 15 000 | 5 000 | 5 000 | 5 000 | 55 000 |

Action 1-B: Profesionalization of rural organizations

Action 1-B.01 : To train the GIC staff in the technical and financial management of the groups

- Objective: to prepare the GIC to ensure properly irrigation network maintenance and water invoices payment, to undertake administrative and financial processes necessary to the vegetable and animal agricultural products management ;
- Targets : the 5 GIC's (expect that of Goubellat which is already started).
- Planner : 1 training month / GIC.
- Places : GIC offices.
- Process: The essential conditions before the filling for each perimeter :
 - Gather the GIC's of each irrigated area in GDA, which will be managed by only one technical director;
 - Prepare one working capital for the GDA's constituted by the water settlement by the beneficiaries during 6 months. The CRDA's authorizes a late payment of 6 months to the GDA's so that they can start their activities (maintenance and irrigation network operating costs and the staff payment);
 - Launch a competition for the missing contractors technical directors assignment for the GDA's of the perimeters of Sejnane, Hammam Bourguiba and Nefza, specialized in agro-economics or holder of a master's degree in management. These directors remuneration during the first year will be dependent on the labour office 21-21 by means of 50% of their salaries, the rest will be paid by the GDA ; the following years, their salaries will be only dependent on the GDA's;
 - Assign one water distributor for each GDA in all the perimeters expect for the perimeter of Goubellat, which is already functional, and then recruit other water distributors according to the GDA's needs evolution;
 - Launch for each GDA the necessary consultation for the purchase of the following equipments:
 - Means of transport : one car and one motorcycle ;
 - Office automation means : one desk, one cupboard, one computer, one printer and one telephone Fax ;
 - Study and adopt one invoicing technique (monomial or binomial) to apply for each GDA after discussion with the beneficiaries;
 - Create a coffer financed by the beneficiaries to the supplies, heifers and other if necessary, to structure the animal and vegetable productions sale of the farmers members of the GDA.
 - Organize vegetable production channels to ensure the lowest price of supplies and the production sale ; that is, sign contracts with seeds, plantations, fertilizing and herbicides suppliers on the one hand and sign agreements with intermediaries of the vegetable productions marketing network, on the other hand ;
 - Establish the necessary agreements the breeding centers approved by the central committee of the follow-up and the of the OEP heifers, to supply every two years the GDA with heifers;
- Implementation : Easy, with the coordination of the labour office 21-21, the irrigated areas districts and the animal and vegetable production of each CRDA ;
- Urgency : high, because the current organization is not adapted to a professional management covering all the GDA activities ;
- Importance : very important, for a better areas development management ;

- Global amount : 283,600 DT

Table n° IV-25: Expenses allocation on the state budget to assign to the reinforcement of the farmers organization

| Activity | QTE | | | | | PRICE UNIT | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | Total amount | |
|---|-----|----|-------------|----|-----|---------------|---------|---------------|---------|---------------|---------|---------------|---------|---------------|---------|---------------|-----------------|--------|
| | 1 | 2 | 3 | 4 | 5 | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | | |
| | an | an | an | an | an | | | | | | | | | | | | | |
| Technical directors recruiting | | | | | | | | | | | | | | | | | | |
| -GDA of Sejnane | | | 1 | | | 6 000 | APR-DEC | 4 500 | JAN-DEC | 6 000 | JAN-DEC | 6 000 | JAN-DEC | 6 000 | JAN-DEC | 6 000 | 6 000 | 28 500 |
| -GDA of H.Bourguiba | | | 1 | | | 6 000 | JAN-DEC | | JAN-DEC | 6 000 | JAN-DEC | 6 000 | JAN-DEC | 6 000 | JAN-DEC | 6 000 | 6 000 | 24 000 |
| -GDA of Nefza | | | 1 | | | 6000 | JAN-DEC | 6 000 | JAN-DEC | 6 000 | JAN-DEC | 6 000 | JAN-DEC | 6 000 | JAN-DEC | 6 000 | 6 000 | 30 000 |
| The water distributors recruiting | | | | | | | | | | | | | | | | | | |
| Perimeter of Sejnane | 1 | | 1 | | 1 | 3 600 | APR-DEC | 2 700 | JAN-DEC | 3 600 | JAN-DEC | 7 200 | JAN-DEC | 7 200 | JAN-DEC | 10 800 | 31 500 | |
| Perimeter of Nefza | 1 | | 1 | | 1 | 3 600 | JAN-DEC | 3 600 | JAN-DEC | 3 600 | JAN-DEC | 7 200 | JAN-DEC | 7 200 | JAN-DEC | 10 800 | 32 400 | |
| Perimeter of Fernana | 1 | | | 1 | | 3 600 | JAN-DEC | 3 600 | JAN-DEC | 3 600 | JAN-DEC | 7 200 | JAN-DEC | 7 200 | JAN-DEC | 7 200 | 28 800 | |
| Perimeter of H.Bourguiba | | | 1 | | | 3 600 | JAN-DEC | | JAN-DEC | 3 600 | JAN-DEC | 3 600 | JAN-DEC | 3 600 | JAN-DEC | 3 600 | 14 400 | |
| Consultation for the acquisition : | | | Sej,Fer,Nef | | H.B | | | | | | | | | | | | | |
| - Cars | | | 4 | | 1 | 15 000 | JAN-DEC | 54 000 | JAN-DEC | 21 000 | | | | | | | 75 000 | |
| - Motorcycle by water distributor | | | 8 | | 1 | 2 000 | JAN-DEC | 6 000 | JAN-DEC | 2 000 | JAN-DEC | 6000 | | | JAN-DEC | 4 000 | 18 000 | |
| - Office automation equipments and cupboards | | | 4 | | 1 | 1 500 | JAN-DEC | 6 000 | JAN-DEC | 1 500 | | | | | | | 7 500 | |
| -Computers and printers | | | 4 | | 1 | 2 500 | JAN-DEC | 10 000 | JAN-DEC | 2 500 | | | | | | | 12 500 | |
| Global cost allocation a year (DT) | | | | | | | | | | | | | | | | | | |
| for the Perimeter of Sejnane : | | | | | | | | | | | | | | | | | | |
| On the GDA budget | | | | | | | | 24 450 | | 11 100 | | 15 200 | | 13 200 | | 18 800 | 82 750 | |
| On the labour office 21-21 Budget of Bizerte | | | | | | | | 2 250 | | | | | | | | | 2 250 | |
| Sub Total | | | | | | | | 26 700 | | 11 100 | | 15 200 | | 13 200 | | 18 800 | 85 000 | |
| For the perimeter of Nefza : | | | | | | | | | | | | | | | | | | |
| On the GDA budget | | | | | | | | 26 100 | | 11 100 | | 15 200 | | 13 200 | | 18 800 | 84 400 | |
| On the labour office 21-21 Budget of Beja | | | | | | | | 3 000 | | | | | | | | | 3 000 | |
| Sub Total | | | | | | | | 29 100 | | 11 100 | | 15 200 | | 13 200 | | 18 800 | 87 400 | |
| For the irrigated areas of Fernana and Hammam Bourguiba: | | | | | | | | | | | | | | | | | | |
| On the GDA budget of the perimeter of Fernana | | | | | | | | 23 100 | | 5 100 | | 9 200 | | 7 200 | | 7 200 | 51 800 | |
| Son the GDA budget of the perimeter of Hammam Bourguiba | | | | | | | | | | 27 600 | | 9 600 | | 9 600 | | 9 600 | 56 400 | |
| On the labour office 21-21 budget of Jendouba | | | | | | | | | | 3 000 | | | | | | | 3 000 | |
| Sub Total | | | | | | | | 23 100 | | 35 700 | | 18 800 | | 16 800 | | 16 800 | 111 200 | |
| TOTAL AMOUNT (DT) | | | | | | | | 78 900 | | 57 900 | | 49 200 | | 43 200 | | 54 400 | 283 600 | |

Action 1-C: To improve the collaboration between rural organization and Administration

Action 1-C.01: Creation of a perimeter manager post

- Objective : to ensure a better organization to guarantee the projects sustainability
- Targets : The irrigated areas of Sejnane and Nefza;
- Planner : 5 years.
- Place: Current offices of the project unities at each area level ;
- Process :
 - Concerning the perimeters of Sejnane and Nefza, the maintenance and development districts managers have to choose, among the technical assistants of each CRDA, one perimeter manager specialized in hydraulic or rural engineering, he would have the following tasks:
 - Coordination between the GDA's and the district, development and maintenance of the CRDA ;
 - Preparation of subscription contracts GDA-CRDA and beneficiaries GDA;
 - Preparation of contracts of reimbursement of the GDA's of the irrigation network ;
 - Preparation of undertaken maintenance contracts GDA ;
 - Officering of the GDA's for the water invoicing and sale procedure ;
 - To follow up each beneficiary water saving files (follow up and study of irrigation equipments setting confined at the parcel);
 - The perimeter manager is already assigned for the perimeter of Fernana, when Hammam Bourguiba's is not yet chosen because of land problems, this job should be created at the beginning of 2007
 - Concerning the perimeter of Goubellat, the coordination will be undertaken from the maintenance and development unit of the CRDA of El Medjez ;
 - The perimeter managers payment will be dependent on the budget of the CRDA ;
- Implementation : Easy with the engineers and the technical assistants ability support ;
- Urgency : high, because of the difficulty of information circulation between the different participants.
- Importance : Very important for a very good management of the perimeters ;
- Global amount : 82,000 DT ;

Table n° IV-26 : Creation of a post perimeter manager

| Activity | Qty | Unit amount | Quantities allocation a year | | | | | | | | | | Total amount |
|--|-----|-------------|------------------------------|---------------|---------|---------------|---------|---------------|---------|---------------|---------|---------------|---------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| Post perimeter manager | | | | | | | | | | | | | |
| For the perimeter of Sejnane | 1 | 6 000 | Mai-Dec | 4 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | 28 000 |
| For the perimeter of Nefza | 1 | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | 30 000 |
| For the perimeter of Fernana | 1 | 6 000 | | | Jan-Dec | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | 24 000 |
| Global cost allocated a year (DT) | | | | | | | | | | | | | |
| On the CRDA budget of Bizerte | | | | 4 000 | | 6 000 | | 6 000 | | 6 000 | | 6 000 | 28 000 |
| On the CRDA budget of Beja | | | | 6 000 | | 6 000 | | 6 000 | | 6 000 | | 6 000 | 30 000 |
| On the CRDA budget of Jendouba | | | | | | 6 000 | | 6 000 | | 6 000 | | 6 000 | 24 000 |
| Total amount (DT) | | | | 10 000 | | 18 000 | | 18 000 | | 18 000 | | 18 000 | 82 000 |

Action I-C.02: To organize exploitation and maintenance of irrigation networks

- Objective : to ensure a best organization to guarantee the durability of the irrigation networks, tracks, and the drainage network ;
- Targets : The irrigated areas of Sejnane, and Nefza .
- Chronogram : 5 years.
- Place : Current offices of the project unities at each area level.
- Process : For the perimeter of Sejnane the CRDA of Bizerte has to create a maintenance unit composed of:
 - One contractor maintenance agent, one hydraulic technician selected further to a competition brought into the irrigated area district of each CRDA ;
 - This agent payment will be, the first year, dependent on the labour office 21-21 by means of 50% of his salary, the remainder will be dependent on the CRDA ; The following years, his salary will be paid by the CRDA ;

 - One machine driver, one chauffeur and three workers, they will be assigned further to an interview in the irrigated area district of each CRDA, the latter will pay their salaries ;
 - Each unit has to be equipped with :
 - One tractor with towing ;
 - One SUV car ;
 - One hydraulic shovel ;
 - One generator 220/380 ;
 - One soldering post on carriage sur chariot 220/380 ;
 - Hydraulic accessories for différent diameters : Sleeve, Tee, Coudes électrosoudables, collars to weld, des Compteurs volumétriques ;
 - The supplying of machines transfer cars will be dependent on the CRDA, further to notice appel d'offre ;
 - Part of hydraulic accessories, destinées pour les réparations des départs d'antenne, les ouvrages de sectionnement et les conduites d'irrigation en Frété Béton, will be dependent on the CRDA, further to consultations ou des avis d'appel d'offres ;
 - Les accessoires hydrauliques destinés pour les réparations des antennes en PEHD et les bornes d'irrigation will be dependent on the GDA's ;

 - For the perimeter of Nefza the maintenance unit has been existing since 2004, it has to reinforced
 - The assignment of one machine driver and two workers for maintenance of the irrigation network ;
 - One electrical engineer, 5 pump attendants, and one driver for the maintenance and the la mise en marche de
 - The pumping station ;
 - A car for moving ;
 - One tractor and one hydraulic shovel ;

 - These agents payment and the machines supplying will be dependent on the CRDA ;

- The first year, the labour office 21 – 21 will be responsible for the electrical engineer payment, by means of 50% of the salary, The remainder will be dependent on the CRDA;
- The CRDA will be responsible for his salary the following years;;

- For the perimeter of Goubellat the maintenance unit has been existing since 2004 and requires the supplying of one moving car for the maintenance team and the pumping station ;

- For the perimeters of Fernana and Hammam Bourguiba the maintenance will be done by the maintenance team of the CRDA ;

- Implementation: Easy, with the district engineers of the maintenance of each CRDA and the regional labour office for the assignment of the maintenance units technicians support

- Urgency : High, for the irrigated areas of Goubellat, Nefza, Sejnane because the filling of the principal pipes of the irrigation networks had been finished ;

- Importance : Very important in order to protect the hydraulic and road infrastructure, and the drainage network of each perimeter ;

- Global amount : 865,300 DT ;

Table n° IV-27 : maintenance units creation

| Activity | Qty | Unit amount | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | Total amount |
|---|-----|-------------|---|----------------|---------|----------------|---------|---------------|---------|---------------|---------|---------------|----------------|
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| | | | Composition of the maintenance unit for the perimeter of Sejnane | | | | | | | | | | |
| Human means | | | | | | | | | | | | | |
| Maintenance agent | 1 | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | Jan-Dec | 6 000 | 30 000 |
| Vehicle driver | 1 | 4 200 | May-Dec | 2 800 | Jan-Dec | 4 200 | Jan-Dec | 4 200 | Jan-Dec | 4 200 | Jan-Dec | 4 200 | 19 600 |
| Workers | 3 | 3 600 | Jan-Dec | 10 800 | Jan-Dec | 10 800 | Jan-Dec | 10 800 | Jan-Dec | 10 800 | Jan-Dec | 10 800 | 54 000 |
| SUV chauffeur | 1 | 3 600 | May-Dec | 2 400 | Jan-Dec | 3 600 | Jan-Dec | 3 600 | Jan-Dec | 3 600 | Jan-Dec | 3 600 | 16 800 |
| Equipments | | | | | | | | | | | | | |
| A tractor with towing | 1 | 65 000 | May | 58 500 | May | 6500 | | | | | | | 65 000 |
| An hydraulic shovel | 1 | 120 000 | OCT | 108 000 | OCT | 12000 | | | | | | | 120 000 |
| SUV car | 1 | 15 000 | May | 13 500 | May | 1500 | | | | | | | 15 000 |
| A generating set 220/380 | 1 | 10 000 | May | 9 000 | May | 1000 | | | | | | | 10 000 |
| A soldering box on trolley 220/380 | 1 | 6 500 | May | 5 850 | May | 650 | | | | | | | 6 500 |
| hydraulic accessories set | 1 | 130 000 | May | 26 000 | May | 26 000 | May | 26 000 | May | 26 000 | May | 26 000 | 130 000 |
| Global cost allocated a year (DT) | | | | | | | | | | | | | |
| On the CRDA budget of Bizerte | | | | 239 850 | | 68 250 | | 46 600 | | 46 600 | | 46 600 | 447 900 |
| On the labour office 21-21 budget | | | | 3 000 | | | | | | | | | 3 000 |
| On the GDA budget | | | | | | 4 000 | | 4 000 | | 4 000 | | 4 000 | 16 000 |
| Total amount (DT) | | | | 242 850 | | 72 250 | | 50 600 | | 50 600 | | 50 600 | 466 900 |
| Composition of the maintenance unit for the perimeter of Nefza | | | | | | | | | | | | | |
| Human means | | | | | | | | | | | | | |
| Vehicle driver | 1 | 4 200 | May-Dec | 2 800 | Jan-Dec | 4 200 | Jan-Dec | 4 200 | Jan-Dec | 4 200 | Jan-Dec | 4 200 | 19 600 |
| Workers | 2 | 3 600 | Jan-Dec | 7 200 | Jan-Dec | 7 200 | Jan-Dec | 7 200 | Jan-Dec | 7 200 | Jan-Dec | 7 200 | 36 000 |
| Electrical engineer | 1 | 4 200 | Jan-Dec | 4 200 | Jan-Dec | 4 200 | Jan-Dec | 4 200 | Jan-Dec | 4 200 | Jan-Dec | 4 200 | 21 000 |
| Pump attendants | 5 | 3 600 | Jan-Dec | 18 000 | Jan-Dec | 18 000 | Jan-Dec | 18 000 | Jan-Dec | 18 000 | Jan-Dec | 18 000 | 90 000 |
| SUV chauffeur | 1 | 3 600 | May-Dec | 2 400 | Jan-Dec | 3 600 | Jan-Dec | 3 600 | Jan-Dec | 3 600 | Jan-Dec | 3 600 | 16 800 |
| Equipments | | | | | | | | | | | | | |
| A travel car | 1 | 15 000 | May | 13 500 | May | 1500 | | | | | | | 15 000 |
| A tractor with towing | 1 | 65 000 | May | 58 500 | May | 6500 | | | | | | | 65 000 |
| An hydraulic shovel | 1 | 120 000 | OCT | 108 000 | OCT | 12000 | | | | | | | 120 000 |
| Global cost allocated a year (DT) | | | | | | | | | | | | | |
| On the CRDA budget of Beja | | | | 212 500 | | 57 200 | | 37 200 | | 37 200 | | 37 200 | 381 300 |
| On the labour office 21-21 budget | | | | 2 100 | | | | | | | | | 2 100 |
| Total amount (DT) | | | | 214 600 | | 57 200 | | 37 200 | | 37 200 | | 37 200 | 383 400 |
| Composition of the maintenance unit for the perimeter of Goubellat | | | | | | | | | | | | | |
| Equipments | | | | | | | | | | | | | |
| A travel car | 1 | 15 000 | May | 13 500 | May | 1500 | | | | | | | 15 000 |
| Total amount on the CRDA budget of Beja (DT) | | | | 13 500 | | 1 500 | | | | | | | 15 000 |
| Global cost allocated a year (DT) | | | | 470 950 | | 130 950 | | 87 800 | | 87 800 | | 87 800 | 865 300 |

IV.2.2 - The general actions that solve land problems

Actions 2-A : General actions solving land problems

- Objective : To bring new blood into the farmers, and gather one farmer parcels in order to structure the perimeters and improve the cost effectiveness of the farms;
- Target : AFA the land tribunal of Beja, Bizerte, Jendouba, CRDA Jendouba, CNSS, 5 perimeters farmers ;
- Planner : 5 years
- Places : the five perimeters : Goubellat, Nefza, Sejnane, Fernana, Hammam-Bourguiba
- Process : In the current situation, the agrarian reform (realized in three stages see III.2.1 p III-4) of the five perimeters and with a variable progress according to the area and its socioeconomic context, (Table n° IV-28). Thus there are still residual problems and actions to undertake for the land adjustment of the perimeters.

Table n° IV-28: Progress of the agrarian reform in the perimeters, residual problems and actions to undertake.

| Irrigated area | Sector | Agrarian reform | | | Residual problems and concerned surface | | Short, middle and long term actions for the land regularization and the perimeters development | |
|------------------|-----------|-----------------|--------|--------|---|---------|--|----------------------|
| | | Step 1 | Step 2 | Step 3 | Problem | Surface | Land problems solution | development solution |
| Goubellat | | | | | Problem | Surface | | |
| Nefza | Bouzena | | | | hbous Sidi Madien | 245ha | | |
| | Cap Negro | | | | | | | |
| | Jmila | | | | | | | |
| | Touila | | | | | | | |
| | Ouechtata | | | | Land certificates | | | |
| Sejnane | sector 1 | | | | | | | |
| | sector2 | | | | | | | |
| | sector 3 | | | | Land certificate | 100ha | | |
| | sector 4 | | | | Land certificate | 100ha | | |
| | sector 5 | | | | Land certificate | 170ha | | |
| | sector 6 | | | | | | | |
| | sector 7 | | | | Land certificate | 200ha | | |
| | sector 8 | | | | | | | |
| Fernana | | | | | Land certificates | | | |
| Hammam Bourguiba | | | | | Social problems and disagreement between groups | 770ha | Sensitize the farmers to the agrarian reform | |

The land certificates constitute a general problem to almost all the perimeters. This problem is due to certificates with an important number of owners not updated, on the one hand, and the farmers are not the owners on the other hand, or constitute a little part of the whole ownership, on the other hand. In other respects, there is another problem related to on horseback land certificate in an irrigated area and in dry ground, which makes the certificate reorganization all the more difficult. In that case, the action to undertake is the land discharge that is definitive land regularization of the parcels, according to, first the agreement of a committee including the ministry of agriculture representatives, the farmers and the regional responsables (omdats...) and then the final judgment of the land tribunal.

In other respects, the land problems specificities and the actions to undertake for each perimeter are as follows :

- Sejnane : The douars make the AFA work difficult because it is not possible to regroup the constructed and inhabited areas, the AFA evaluates between 10 and 20% the surface of the perimeter occupied by the douars. The essential action to undertake in this case is the limitation of the build surfaces for the habitation development.
- Nefza : In addition to the difficulty to regroup the land certificates, there are in Nefza, notably in the Ouechtata sector, arboricultural areas banned from regrouping. In this case, the long run action to undertake is to minimize the very little sized parcels number as one goes along the land transactions.

- Goubellat : The land regularization is almost finished. One private Soil plot is still problematic in a legal point of view but is entitled to farming because it is easier to get a granting PV.
- Fernana : The land regularization is not yet finished, but the cutting up has been realized and approved by the committee, thus it is possible for the farmers to start working their lands through the granting PV's until the definitive regularization. For Fernana, the attribution of granting PV's has to be fast and made easier to succeed in the perimeter development in the short run and also to ensure a durable development, a clear and definitive land discharge operation has to be implemented.
- Hammam-Bourguiba : The Hammam-Bourguiba situation hasn't progressed a lot, because the AFA proposal to maintain the current situation has been refused by the committee. The AFA will thus have to take up again at the beginning of the stage 2 and to resuggest a new cutting up. The realization of a new cutting up attempt after two failures will have to be enclosed with new tools as intensive sensibilization of the beneficiaries to the agrarian reform interest. A pilot project of agrarian reform in Hammam Bourguiba should be implemented.

The pilot project proposed in Hammam-Bourguiba is constituted of :

- The heightening of the farmers to the agrarian reform interest by sociologists skilled in communication in rural environments and in farmers organizations and by agronomists to sensitise to lands differentiation according to their agronomic potentialities.
- The evaluation of lands physical potentialities by the soil department of the CRDA Jendouba.
- The precise zoning (at 1/5000) of the perimeter according to the physical potentialities and the different cultivations potential cost effectiveness and the attribution to the different areas a land value by hectare according to agronomic potentialities by the CRDA. These numbered values will have to be approved by a committee gathering the different intervening: CRDA, GDA, CTV, UTAP, AFA, omdats and farmers.
- Realize the reform with taking into account the attributed values to the lands
- New actors intervene in the agrarian reform project: the CRDA and a sociologists/agronomists team to complete the AFA work. The agreement reached by consensus between these different participants and the farmers about the farming lands value will allow less arbitrary cutting up and which takes into account the production potentialities.

Generally, economically non viable small farms will last even after the perimeters agrarian reform. The small farms will represent an important number of beneficiaries but will constitute only a little part of the perimeter surface. In other words, the non viable farmers are able not to question the economical viability of the perimeter but do not represent a coming guarantee of an important part of the population living in the perimeters.

In addition to the land discharge of the pilot project, one action favouring the beneficiaries' rejuvenation is necessary to encourage the youth installation. After a heightening campaign of the farmers to interest of selling their lands, the AFA will have to be endowed with one coffer to buy them and the CNSS with one fund to give pensions to the retired farmers. The AFA will sell afterward these lands to young farmers open to modernization brought by irrigated agriculture and who will not be constrained by the emigration toward the cities.

- Implementation: Difficult because of the current situation of unfavourable socio-economic context and the beneficiaries' lack of understanding of the reform advantages, the implementation should be less difficult along the filling of the perimeters. It is also difficult because the old farmers do not accept to leave their land, on the one hand and their children prefer emigrate toward the city on the other hand.. Furthermore, the farmers are not yet satisfied by the authorities because their expropriated lands for the pumping stations or other cases have not yet been replaced.
- Urgency: Urgent because the land regularization is essential to obtain long run bank loans and thus the development of irrigated areas.
- Importance : Very important because :

- The irrigated agriculture requires organized parcels for the optimization of work and for minimum surfaces to secure a viable revenue for the farmers.
 - The modern irrigated agriculture requires the acceptance and the fast assimilation of novelties.
- Global amount : 4,650,000 DT

The land discharge has to be based on the pre-assignment project to the land regularization of the perimeters. The pilot project of Hammam-Bourguiba requires the heightening actions financing and of physical, agronomic and financial valuation of the perimeters lands. The budget source can be bounded to the State because the CRDA can take an important part of the operations to realize on.

The beneficiaries rejuvenation requires the creation of two coffers : one AFA coffer for the two first years during which the land agency will buy back lands to the old farmers, the following years, the selling of these lands will allow to perpetrate the operation ; one CNSS fund for the retired farmers will allow to give a pension to old farmers who have accepted to give up their lands to the AFA.

Table n° IV-29: expenses amount to realize allocation, on the state budget in order to solve land problems of the 5 perimeters.

| Amount in DT | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Total |
|--|---|------------------|----------------|----------------|----------------|------------------|
| Land discharge | Budget national préattribué à la réforme agraire dans les cinq périmètres | | | | | |
| Pilot project in Hammam Bourguiba | 400 000 | 200 000 | 170 000 | | | 770 000 |
| AFA fund | 500 000 | 500 000 | | | | 1 000 000 |
| CNSS fund | 240 000 | 480 000 | 720 000 | 720 000 | 720 000 | 2 880 000 |
| Total | 1 140 000 | 1 180 000 | 890 000 | 720 000 | 720 000 | 4 650 000 |

IV.2.3 - The general actions that solve all the beneficiaries concerns

Actions 3-A : Production systems intensification financing

Action 3-A.01 : To expect the subsidies financing to beneficiaries of the three projects perimeters.

- Objective : To ensure to beneficiaries a rapid access to the state subsidies for the irrigated agriculture development.
- Target : Financing and Encouragement Districts (district FE) of three CRDA : Beja, Bizerte et Jendouba
- Planner : 5 years for progressive equipment of the five irrigated areas.
- Place : The 5 irrigated areas Goubellat, Nefza, Sejnane, Fernana et Hammam-Bourguiba of the three projects.
- Process : To pay money into the funds of the 3 districts FE of the 3 CRDA of 27,3 MDT out of 5 years.
- Implementation : Easy through the disposal of 27,3 MDT by the state.
- Urgency : High, at the sight of the imminent filling of the perimeters
- Importance : Very important, to ensure the equipment and the functioning of the irrigated areas.
- Global amount: 27,343,225 DT.

Table n° IV-30 : Expenses amount allocation the state has to attribute to the FE CRDA districts.

| FE district of the CRDA of : | MLT financing in DT | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Sub Total | TOTAL |
|------------------------------|---------------------|------------------|------------------|------------------|------------------|----------------|-------------------|-------------------|
| Beja | Goubellat | 3 396 878 | 2 348 541 | 684 073 | 44 708 | 26 825 | 6 501 025 | 13 173 275 |
| | Nefza | 1 523 858 | 2 191 083 | 1 952 661 | 882 113 | 122 534 | 6 672 250 | |
| Bizerte | Sejnane | 2 012 472 | 2 957 897 | 2 639 484 | 1 352 420 | 491 977 | 9 454 250 | 9 454 250 |
| Jendouba | Fernana | 663 265 | 927 075 | 785 662 | 247 678 | 14 421 | 2 638 100 | 4 715 700 |
| | Hm Bourguiba | 501 698 | 709 458 | 608 208 | 220 555 | 37 681 | 2 077 600 | |
| | TOTAL | 8 098 171 | 9 134 054 | 6 670 088 | 2 747 473 | 693 438 | 27 343 225 | 27 343 225 |

Action 3-A.02 : Reinforcement of the financing structures of the agriculture and agricultural and agribusiness services in the three governorates

- Objective : To ensure a financing capacity of the agricultural projects and the agricultural and agribusiness services in the branch offices BNA et BTS and local financing associations of the governorates of Beja, Bizerte Jendouba.
- Targets : Regional branch offices BNA, BTS and local financing associations of the governorates of Beja, Bizerte Jendouba.
- Planner : 2 years.
- Places : Beja, Bizerte Jendouba.
- Process :
 - To install a control system of physical and collection realizations (as the one implemented for the financing of the PACFS) ;
 - To install in the branch offices BNA, BTS of the governorates of Beja, Bizerte and Jendouba specific credits lines to the irrigated agriculture of the perimeters of the three Projects.
 - To promote local financing associations and agricultural development ONG creation for the financing and the assistance to agricultural microprojects creation.
 - To install in the branch offices BNA, BTS of the governorates of Beja, Bizerte and Jendouba specific credits lines to the financing projects of agricultural services (equipments provider and supplies...)
 - To install in the branch offices BNA, BTS of the governorates of Beja, Bizerte and Jendouba specific credits lines to the financing projects of food industry and structures of storage and of sale of the irrigated agriculture products.
 - Finance the equipment and the value increase of the plots rent by the state in favour of its employees or of new promoters while waiting for obtaining long run rental agreements (as the OEP Sejnane and some plots at Goubellat).
- Implementation : Difficult, at the sight of the current tending of banks toward financing other activities than agricultural ones.
- Urgency : High, considering the financial constraints of the majority of the farmers.
- Importance : very important, to ensure the integrated perimeters development which requires first the agricultural financing and then satellites activities as the agricultural service and the food industry.
- Global amount: This action requires funds raising 100% repayable.

IV.2.4 - The planner of the general action plan

Finally, all the actions proposed to a complementary financing represent 34, 293,125 DT.

The actions proposed to a complementary financing are distributed out of the five following years according to the planner presented in the Table n° IV-31 of the page IV-39.

Thus, the budget is distributed out of 5 years. The essential part of the expenses (84%) have to be realized during the three first starting years of the 3 projects : 29% the first year, 31% the second and 21% the third. These expenses are to realize in the 5 perimeters of the 3 projects.

Table n° IV-31: Summary of general actions Plan to be implemented

| | Number | Titles | Année 1 | Year 2 | Year 3 | Year 4 | Year 5 | TOTAL |
|-----------------------|---|---|-------------------|-------------------|------------------|------------------|------------------|-------------------|
| Très Important | 1-A.01 | Training of the intervening in the development of the perimeters and innovation for the perimeters durability | 66 000 | 66 000 | 66 000 | 60 500 | 60 500 | 319 000 |
| | 1-B | Professionnalization of the farmers organizations | 78 900 | 57 900 | 49 200 | 43 200 | 54 400 | 283 600 |
| | 1-C.01 | Creation of a post perimeter manager | 10 000 | 18 000 | 18 000 | 18 000 | 18 000 | 82 000 |
| | 1-C.02 | Creation of a maintenance district | 470 950 | 130 950 | 87 800 | 87 800 | 87 800 | 865 300 |
| | 2.A | To solve land problems | 1 140 000 | 1 180 000 | 890 000 | 720 000 | 720 000 | 4 650 000 |
| | 3-A.01 | Financing the subsidiesfor the perimeters beneficiaries | 8 098 171 | 9 134 054 | 6 670 088 | 2 747 473 | 693 438 | 27 343 225 |
| Important | 1-A.02 | Developpement of applied agricultural research plans | 60 000 | 60 000 | 60 000 | 60 000 | 60 000 | 300 000 |
| | 1-A.03 | Reinforcement of the popularization services | 60 000 | 140 000 | 90 000 | 65 000 | 40 000 | 395 000 |
| | 1-A.04 | To involve women in the perimeters life | 25 000 | 15 000 | 5 000 | 5 000 | 5 000 | 55 000 |
| | 3-A.02 | Reinforcement of financing structures | | | | | | |
| | Total | | 10 009 021 | 10 801 904 | 7 936 088 | 3 806 973 | 1 739 138 | 34 293 125 |
| | Expenses allocation out of the five excepted years | | 29% | 31% | 23% | 11% | 5% | 100% |

IV.3 - Specific action Plan to TS-P7 Project

In the following is presented a listing of priority actions to be put into place to solve all the problems raised to the optimum hydraulic development of the 6.400 ha that were realized within the framework of TS-P7 project.

IV.3.1 - TS-P7 Project specific actions that solve the beneficiaries concerns

Actions 1-A : Improvement of irrigation networks

Action 1-A.01: Additional works in the shared hydrants

- Objective : Make the development of the shared hydrants easier
- Targets : 500 shared hydrants of the perimeter of Sejnane
439 shared hydrants of the perimeter of Nefza
- Chronogram : 5 years.
- Place: Sejnane and Nefza perimeters
- Process :

Before the filling of the perimeter of Sejnane, which is expected for May 2006, the maintenance districts managers, the planning manager and the project manager have to :

- Adapt the irrigation network to the scheme divided into sections of the AFA, with reimplanting the limits parcels, the irrigation hydrants foyers placed in the parcels centres, in order to make their development by other farmers easier;

We estimate that 5% of the shared hydrants are to reimplant, that is 25 hydrants ;

- Considering Nefza and Sejnane perimeters development, the maintenance districts managers of each CRDA have to::
 - ◆ Equip the shared hydrants by multiplugs, consequent to invite bids or purchase consultation spread on 5 years, we count 500 multiplugs for the perimeter of Sejnane and 439 for the perimeter of Nefza ;
 - ◆ Assign to each borne foyer 4 farmers who will be vis à vis each intake water ;
 - ◆ Set the intake water each in turn ;
- Implementation : easy with support of the GIC and CRDA PPI
- Urgency : high because of the conflicts between farmers who share irrigation hydrants and the water violation by creating illegal intakes on the irrigation branch.
- Importance : very important in order to stop every kind of water violation and make easier the perimeter shared hydrants exploitation.
- Approximative amount : 328,650 DT, distributed as follows :
 - ◆ On the CRDA budget of Bizerte = 175,000 DT ;
 - ◆ On the CRDA budget of Beja = 153,650 DT ;

Table n° IV-32 : Supplementary works for shared hydrants

| Activity | Qty | Amount Unitair | Quantities allocated a year | | | | | | | | | | | Total Amount | |
|---|-----|-------------------|-----------------------------|---------------|---------|---------------|---------|---------------|---------|---------------|---------|---------------|---------|-----------------|--|
| | | | 2005 | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | |
| | | | Date | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | | |
| The necessary steps taken by the project manager, the districts managers of maintenance and development of each CRDA | | | | | | | | | | | | | | | |
| For the perimeter of Sejnane | | | | | | | | | | | | | | | |
| Adapt the irrigation network of the perimeter to the scheme divided into sections of the AFA | | | SEP-NOV | | | | | | | | | | | | |
| Reimplant the shared hydrants to the parcels limits | 25 | | DEC-FEV | | | | | | | | | | | | |
| Assignment of the shared hydrants to the farmers | 500 | | Mar-May | | | | | | | | | | | | |
| Equipments of the shared hydrants by multiplugs | 500 | 350 | Mar-Dec | 35 000 | Jan-Dec | 35 000 | Jan-Dec | 35 000 | Jan-Dec | 35 000 | Jan-Dec | 35 000 | Jan-Dec | 35 000 | |
| For the perimeter of Nefza | | | | | | | | | | | | | | | |
| Assignment of the shared hydrants to the farmers | 439 | | SEP-DEC | | | | | | | | | | | | |
| Equipments of the shared hydrants by multiplugs | 439 | 350 | Jan-Dec | 30 730 | Jan-Dec | 30 730 | Jan-Dec | 30 730 | Jan-Dec | 30 730 | Jan-Dec | 30 730 | Jan-Dec | 30 730 | |
| Global cost allocation a year (DT) | | | | | | | | | | | | | | | |
| On the budget of CRDA of Bizerte | | | | | | | | | | | | | | | |
| | | | | 35 000 | | 35 000 | | 35 000 | | 35 000 | | 35 000 | | 175 000 | |
| On the budget of CRDA of Beja | | | | | | | | | | | | | | | |
| | | | | 30 730 | | 30 730 | | 30 730 | | 30 730 | | 30 730 | | 153 650 | |
| Total amount (DT) | | | | | | | | | | | | | | | |
| | | | | 65 730 | | 65 730 | | 65 730 | | 65 730 | | 65 730 | | 328 650 | |

Action 1-A.02 : Creation of pilot shared hydrant

- Objective : In order to avoid conflicts between the farmers of the same intake on a shared hydrant that forces the GDA to close this prise although one of them has paid his water part, we propose to create a pilot project on the “bornes foyers” of the perimeter of Sejnane so as to solve these social and technical problems and thus be an example for the others perimeters.
- Targets : 500 shared hydrant eof the perimeter of Sejnane.
- Chronogram : 5 years.
- Place : Sejnane perimeter.
- Process : The pilot project consists on :
 - After each agricultural campaign, the GDA and the perimeter manager have to select the farmers, of the same shared hydrants, who are solvent concerning water billing and motivated to practice irrigated agriculture;
 - With the development and maintenance districts managers and the perimeter manager support, the GDA will sign a contract with a hydromechanical society for the provision and the setting of meters (as aqua-carte) at the shared hydrants level of the chosen farmers, with precising one method of payment spread on three years by means of 30% the first and the second year and 40% the third year ;
 - The GDA distribute to each farmer one magnetic card which will be the shared hydrant key, only the farmers who will have paid their water billing with their magnetic cards will be able to put into service the irrigation hydrant ;
 - With the hydromechanical society support, the GDA has then to organize a seminar for the farmers interested in the project and present the advantages of the aqua-carte hydrant and the obtained results with the other shared hydrants already tested;
 - We count a maximum of 2000 farmers representing each irrigation intakes at the shared hydrants, the GDA can plan the seminar along 4 days in an agricultural university school as the one in Mateur ;
 - Afer that, and on the demands of the farmers of the shared hydrants, the GDA will sign the service to the hydrotechnical society to equip the new shared hydrants;
 - The budget of this action can be divided equally between the CRDA (34%), the GDA (34%) and the beneficiaries (32%).
- Implementation : easy with support of the GIC and CRDA PPI
- Urgency : high because of the conflicts between the farmers sharing the hydrant.
- Importance : very important to make easier the shared thydrant exploitation and be a model for the other perimeters .
- Global amount : 1,100,000 DT, distributed as follows :
 - ◆ CRDA budget = 340,000 DT ;
 - ◆ GDA budget = 340,000 DT ;
 - ◆ Beneficiaries budget = 320,000 DT ;

Table n° IV-33 : Creation of pilot hydrants

| Activity | Qty | Montant Unitair | Quantities allocation a year | | | | | | | | | | Total amount |
|--|------------|-----------------|------------------------------|------|---------|---------------|---------|----------------|----------------|----------------|------------|------------------|--------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken by the GDA, the districts managers of maintenance and development | | | | | | | | | | | | | |
| For the perimeter of Sejnane | | | | | | | | | | | | | |
| Selection of solvent farmers assigned in the shared hydrants | | | SEP-DEC | | SEP-DEC | | SEP-DEC | | SEP-DEC | | SEP-DEC | | |
| Provision and setting of acqua-carte meters by a hydromechanical society : | | | | | | | | | | | | | |
| hydrants number chosen the first year | 50 | 2 000 | | | JAN-MAR | 30 000 | MAR | 30 000 | MAR | 40 000 | | 100 000 | |
| hydrants number chosen the second year | 150 | 2 000 | | | | | JAN-MAR | 90 000 | MAR | 90 000 | MAR | 300 000 | |
| hydrants number chosen the third year | 150 | 2 000 | | | | | | | JAN-MAR | 90 000 | MAR | 300 000 | |
| hydrants number chosen the fourth year | 150 | 2 000 | | | | | | | | JAN-MAR | 300 000 | 300 000 | |
| Total amount of the market (DT) | 500 | 2 000 | | | | 30 000 | | 120 000 | JAN-MAR | 220 000 | MAR | 1 000 000 | |
| Seminars for the farmers interested by the pilot project | 4 | | | | SEP | | SEP | | SEP | | SEP | | |
| Global cost allocated a year (DT) | | | | | | | | | | | | | |
| On the CRDA budget of Bierte (34%) | | | | | | | | | | | | | |
| | | | | | | 10 200 | | 40 800 | | 74 800 | | 340 000 | |
| On the GDA budget (34%) | | | | | | | | | | | | | |
| | | | | | | 10 200 | | 40 800 | | 74 800 | | 340 000 | |
| On the beneficiaries budget (32%) | | | | | | | | | | | | | |
| | | | | | | 9 600 | | 38 400 | | 70 400 | | 320 000 | |
| Total amount (DT) | | | | | | | | | | | | | |
| | | | | | | 30 000 | | 120 000 | | 220 000 | | 1 000 000 | |

Action 1-A.03: Execution of the expected intakes of the OEP of Sejnane

- Objective : Execution of the new hydrants of the OEP of Sejnane on the irrigation network fit out by the project TSP7

- Targets : The farm of Sejnane ;

- Planner : 5 years ;

- Places : Perimeter of Sejnane.

- Process : With the development and maintenance districts managers, the perimeter of Sejnane manager, and the general director of the OEP support, the technical director of the GDA has to :
 - Prepare and sign a contract with a hydraulic works company for :
 - ◆ The execution and the equipment of the new hydrants to fit out in the farm of Sejnane, by reporting to the study: Restructuring of the agricultural OEP of Sejnane, done by the CNEA in February 2005 ;
 - ◆ We count 16 new hydrants to set up ;
 - ◆ The budget of market as it is called, will be dependent on the breeding office;

 - Sensibilize the employees of the farm to the economic importance of the irrigated agriculture in return for a sensibilization seminar every agricultural end;

 - Assign, further to the farm employees demands, to the farmers list of the perimeter of Sejnane, we count 35 employees ;;

- Implementation : Easy, with the development and maintenance districts managers, the perimeter manager the GDA technical director and the OEP general director support ;

- Urgency : Urgent, because the OEP can not ensure the farm employees salaries ;

- Importance : Very important, so that the farm employees can obtain their salaries ;

- Global amount : 24,000 DT ;

Table n° IV-34 : Execution of the expected intakes of the OEP of Sejnane

| Activity | Qty | Unit amount | Quantities allocation a year | | | | | | | Total amount |
|--|-----|-------------|------------------------------|--------|------|-------|------|------|------|--------------|
| | | | 2006 | | 2007 | | 2008 | 2009 | 2010 | |
| | | | Date | Cost | Date | Cost | Date | Date | Date | |
| The necessary steps taken by the GDA, the perimeter manager, the districts managers of maintenance and development and the director general of the OEP: | | | | | | | | | | |
| Preparation and market signature with a hydraulic works to the execution and the equipment of new irrigation hydrants | 16 | 1 500 | Jan-August | 21600 | Aout | 2 400 | | | | 24 000 |
| Sensibilization seminar | 5 | | SEP | | SEP | | SEP | SEP | SEP | |
| Assignment of the farm employees to the list of the perimeter of Sejnane | 35 | | OCT | | OCT | | OCT | OCT | OCT | |
| global cost allocation a year (DT) | | | | | | | | | | |
| On the OEP budget | | | | 21 600 | | 2 400 | | | | 24 000 |

Action 1-B: Preservation of the quality of water of Sidi el Barrak and Sejnane dams

- Objective: To prevent any ground deterioration by salinity linked to fertilization and characterize saline transfer degree at the level of Sidi El Barrak and Sejnane dams in order to prevent any deterioration and contamination

- Targets : Soils districts of the CRDA's of Beja and Bizerte and the general direction of water resources DGRE ;.

- Chronogram : 5 years

- Place : Nefza and Sejnane perimeters.

- Process : The maintenance and soils districts managers of the CRDA's of Beja and Bizerte and with the water resources support have to :
 - Prepare and launch one invite bids for the set up of piezometer in each perimeter to follow up the ascent of the water tables;
 - Follow up the drained waters and soils quality at the principal collectors of the drainage networks level the whole year ;With the evolution of the perimeters development, an execution study of the draining networks for the two perimeters has to be launched;

- Implementation : easy with support of the INGRES.

- Urgency : not immediately as we did not started an intensive fertilization

- Importance : important in order to avoid in one hand the perimeters grounds deterioration and in the other hand Sejnane and Sidi El Barrak dams contamination.

- Approximative amount : 20,150 000 DT, distributed as follows :
 - ◆ On the CRDA budget of Bizerte = 12,060,000 DT ;
 - ◆ On the CRDA budget of Beja = 8,090,000 DT ;

Table n° IV-35 : Follow up of drained water quality and collected soils at the end of the drainage networks

| Activity | Qte | Unit amount | Quantities allocation a year | | | | | | | | | | Total amount |
|---|---------|-------------|------------------------------|---------------|---------|---------------|---------|-----------|-------------------|-----------|-------------------|-------------------|--------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken the districts managers of maintenance and development and the soils and the general direction of the water resources | | | | | | | | | | | | | |
| Setting up of piezometers for: | | | | | | | | | | | | | |
| Perimeter of Sejnane | 20 | 3 000 | | | JAN-DEC | 60 000 | | | | | | 60 000 | |
| Perimeter of Nefza | 30 | 3 000 | JAN-DEC | 90 000 | | | | | | | | 90 000 | |
| Study and execution of a draining network | | | | | | | | | | | | | |
| Perimeter of Sejnane | 3000 ha | 4 000 | | | | | | Jan-DEC | 6 000 000 | JAN-DEC | 6 000 000 | 12 000 000 | |
| Perimeter of Nefza | 2000 ha | 4 000 | | | | | Jan-DEC | 4 000 000 | JAN-DEC | 4 000 000 | 8 000 000 | 8 000 000 | |
| Follow up of the waters and soils qualities on the principal collectors of the drainage | | | | | | | | | | | | | |
| Perimeter of Sejnane | | | | | JAN-DEC | | JAN-DEC | | JAN-DEC | | JAN-DEC | | |
| Perimeter of Nefza | | | | | JAN-DEC | | JAN-DEC | | JAN-DEC | | JAN-DEC | | |
| Global amount allocated a year (DT) | | | | | | | | | | | | | |
| On the CRDA budget of Bizerte | | | | | | | | | | | | | |
| on the CRDA budget of Beja | | | | | | | | | | | | | |
| Total amount (DT) | | | | | | | | | | | | | |
| | | | | 90 000 | | 60 000 | | | 6 000 000 | | 6 000 000 | 12 060 000 | |
| | | | | 90 000 | | 60 000 | | | 4 000 000 | | 4 000 000 | 8 090 000 | |
| | | | | 90 000 | | 60 000 | | | 10 000 000 | | 10 000 000 | 20 150 000 | |

Action 1 C : Improvement of tracks networks

Action 1-C.01 : Extension and improving of tracks networks

- Objective : To improve transportation conditions inside the perimeters
- Targets : Beja and Bizerte CRDA PPI departments and Equipment Regional Departments .
- Chronogram : 5 years
- Place : Nefza and Sejnane perimeters.
- Process : With the evolution of the development of each irrigated area, the maintenance district of each CRDA has to launch and sign a market with a VRD company for :
 - Execute the secondary tracks networks recommended by the AFA by means of 10 km a year, we evaluate :
 - ◆ 30 Km of tracks to fit out at the perimeter of Nefza level ;
 - ◆ 60 Km of tracks to fit out at the perimeter of Sejnane level ;
 - Improve the durability of these tracks with signing a contract with a company VRD for :
 - ◆ The realization of bicoat on the tracks as a whole ;The fit out if necessary of concreted valleys and the clearing of the pipes and the scuppers;
- Implementation :
 - Difficult for Nefza perimeter because of beneficiaries reluctances for the recent tracks crossing their plots
 - Easy for Sejnane perimeter because of the requests of the beneficiaries who don't have arranged tracks at the level of their plots
- Urgency : high because the majority of hydrants are installed in uneven and unstable places for Nefza perimeter and in flooding places for Sejnane perimeter.
- Importance : Important, in one hand to make easier the agricultural work and goods transportation, and in the other hand, to make easier the network repairing and control by the maintenance team.
- Global amount : 5,136,000 DT, distributed as follows :
 - ◆ On the CRDA budget of Bizerte = 3,336,000 DT ;
 - ◆ On the CRDA budget of Beja = 1,800,000 DT ;

Table n° IV-36: Extension et amélioration des réseaux de pistes

| Activité | Qty | Unit amount | Quantities allocation a year | | | | | | | | | | Total amount |
|---|--------|-------------|------------------------------|----------------|---------|------------------|---------|------------------|---------|----------------|---------|------------------|------------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken the districts managers of maintenance and the equipment departmental direction | | | | | | | | | | | | | |
| Execution of the secondary tracks networks | | | | | | | | | | | | | |
| Perimeter of Sejnane | 60 | 50 000 | | | JAN-DEC | 500 000 | JAN-DEC | 500 000 | JAN-DEC | 500 000 | JAN-DEC | 1 500 000 | 3 000 000 |
| Perimeter of Nefza | 30 | 50 000 | JAN-DEC | 500 000 | JAN-DEC | 500 000 | JAN-DEC | 500 000 | | | | | 1 500 000 |
| Improving the durability of existing tracks and secondary networks | | | | | | | | | | | | | |
| Perimeter of Sejnane | 112 Km | 3 000 | | | JAN-DEC | 84 000 | JAN-DEC | 84 000 | JAN-DEC | 84 000 | JAN-DEC | 84 000 | 336 000 |
| Perimeter of Nefza | 100 Km | 3 000 | JAN-DEC | 60 000 | JAN-DEC | 60 000 | JAN-DEC | 60 000 | JAN-DEC | 60 000 | JAN-DEC | 60 000 | 300 000 |
| Global amount allocated a year (DT) | | | | | | | | | | | | | |
| On the CRDA budget of Bizerte | | | | | | 584 000 | | 584 000 | | 584 000 | | 1 584 000 | 3 336 000 |
| On the CRDA budget of Beja | | | | 560 000 | | 560 000 | | 560 000 | | 60 000 | | 60 000 | 1 800 000 |
| Total amount (DT) | | | | 560 000 | | 1 144 000 | | 1 144 000 | | 644 000 | | 1 644 000 | 5 136 000 |

1- D : Creation of windbreak networks

Action 1-D.01 : Realization of windbreaks external network

- Objective : To install peripheral and secondary windbreaks network on each perimeter
- Targets : Beja and Bizerte CRDA Forst departments .
- Chronogram : 2 years in vegetal dormant season.
- Place : Nefza and Sejnane perimeters
- Process: the forest district of each CRDA
 - Sign makets with forest works companies
 - The execution of around 50 Km of wind-break at the perimeter of Nefza level;
 - The execution of 670 Km of wind-break for the perimeter of Sejnane, further to the study executed by the forest district in 204;
- Implementation : easy with support of Forsts department
- Urgency : high, in particular in winter, because of northwest region violent winds.
- Importance : Important, in order to protect the perimeters against winds devastating effects and avoid their fertile ground air transportation
- Global amount : 712,045 DT, distributed as follows :
 - ◆ On the CRDA budget of Bizerte = 662,045 DT ;
 - ◆ On the CRDA budget of Beja = 50,000 DT ;

Table n° IV-37 : Creation of wind breaks networks

| Activity | Qty | Unit amount | Quantities allocation a year | | | | | | | | | | |
|--|-----|-------------|------------------------------|----------------|---------|----------------|---------|----------------|---------|----------------|------|------|----------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | Total amount |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken the districts managers of forests | | | | | | | | | | | | | |
| Execution market of wind breaks | | | | | | | | | | | | | |
| Perimeter of Sejnane | 670 | 988 | JAN-MAR | 202 770 | JAN-MAR | 113 570 | JAN-MAR | 181 285 | JAN-MAR | 164 420 | | | 662 045 |
| Perimeter of Nefza | 50 | 1 000 | JAN-MAR | 50 000 | | | | | | | | | 50 000 |
| Global amount allocated a year (DT) | | | | | | | | | | | | | |
| On the CRDA budget of Bizerte | | | | 202 770 | | 113 570 | | 181 285 | | 164 420 | | | 662 045 |
| On the CRDA budget of Beja | | | | 50 000 | | | | | | | | | 50 000 |
| Total amount (DT) | | | | 252 770 | | 113 570 | | 181 285 | | 164 420 | | | 712 045 |

Action 1 – E : Protection of the perimeters against erosion

Action 1 –E- 0.1 : Water and soils of catchment areas around the perimeters preserving works

- Objective : To study the possible Sejnane river overflowing at the level of the perimeter due to its flow increase caused by the arranged sanitation network infrastructure.

 - Target : Bizerte CRDA CES PPI department .

 - Chronogram : 2 years.

 - Place : Sejnane Canal.

 - Process: The CES district of each CRDA has to :
 - Sign contracts with engineering offices to bring to detailed studies which the objective is :
 - ◆ The possibility of the execution of the hills dams around the Oueds Magra and Meksbaya crossing the perimeters of Sejnane ;
 - ◆ The fitting of the CES works at the catchment area level of each perimeter ;
 - Later on, sign contracts with the public works companies for :
 - ◆ The execution of the hills dams Magra et Meksbaya to protect the perimeter of Sejnane ;
 - ◆ The fitting of the CES works expected by the planning offices ;
- The correction of the meanders of the oueds by executing groynes;
- Implementation : Easy, with the planning offices and the CES districts of each CRDA support

 - Urgency : high because of Sejnane river flow increase due to the arranged sanitation network.

 - Importance : Very important, to protect the hydraulic and road infrastructure hydraulic, and the drainage networks of each perimeter against the silting up and the soils subsidence ;

 - Global amount : 2,030,000 DT, distributed as follows :
 - ◆ On the CRDA budget of Bizerte = 1,080,000 DT ;
 - ◆ On the CRDA budget of Beja = 950,000 DT ;

Table n° IV-38: Water and soils of catchment areas around the perimeters preserving works

| Activity | Qty | Unit amount | Quantities allocation a year | | | | | | | | | | Total amount |
|---|-----|-------------|------------------------------|----------------|------------------|---------|----------------|--------|------|------|------|------------------|--------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken by the districts CES with planning office and public works companies | | | | | | | | | | | | | |
| Study markets for: | | | | | | | | | | | | | |
| Perimeter of Sejnane | | | | | | | | | | | | | |
| hill dam on Oued Magra | 1 | 75 000 | Jan-August | 75000 | | | | | | | | 75 000 | |
| hill dam on Oued Meksbaya | 1 | 75 000 | Jan-August | 75000 | | | | | | | | 75 000 | |
| Planning Study of the CES works | | | | | | | | | | | | | |
| For the perimeter of Sejnane | ENS | 30 000 | Jan-August | 30 000 | | | | | | | | 30 000 | |
| For the perimeter of Nefza | ENS | 30 000 | Jan-August | 30 000 | | | | | | | | 30 000 | |
| Public works markets for: | | | | | | | | | | | | | |
| Perimeter of Sejnane | | | | | | | | | | | | | |
| Execution of Magra dam | 1 | 850 000 | | | JAN-OCT | 765 000 | OCT-DEC | 85 000 | | | | 850 000 | |
| Execution of Meksbaya dam | 1 | 850 000 | | | JAN-OCT | 765 000 | OCT-DEC | 85 000 | | | | 850 000 | |
| Planning of the CES work | | | | | | | | | | | | | |
| For the perimeter of Sejnane | ENS | 40 000 | | | JAN-OCT | 36 000 | OCT-DEC | 4 000 | | | | 40 000 | |
| For the perimeter of Nefza | ENS | 60 000 | | | JAN-OCT | 54 000 | OCT-DEC | 6 000 | | | | 60 000 | |
| Existing drainage networks protection with groynes: | | | | | | | | | | | | | |
| Perimeter of Sejnane | 15 | 10 000 | | | JAN-OCT | 9 000 | OCT-DEC | 1 000 | | | | 10 000 | |
| Perimeter of Nefza | 20 | 10 000 | | | JAN-OCT | 9 000 | OCT-DEC | 1 000 | | | | 10 000 | |
| Global amount allocated a year (DT) | | | | | | | | | | | | | |
| On the CRDA budget of Bizerte | | | | 180 000 | 810 000 | | 90 000 | | | | | 1 080 000 | |
| On the CRDA budget of Beja | | | | 30 000 | 828 000 | | 92 000 | | | | | 950 000 | |
| Total amount (DT) | | | | 210 000 | 1 638 000 | | 182 000 | | | | | 2 030 000 | |

IV.3.2 - Summary Tables of TS-P7 Project specific action Plan

- The general actions proposed to a complementary financing represent : **29,380,695 DT**, according to the Table n° IV-39 and Table n° IV-40, this amount is distributed as follows::
-
- - For the perimeter of Sejnane : **18,337,045 DT**, that will be on the budget of :
 - ◆ **CRDA of Bizerte, corresponding to : 17,653,045 DT;**
 - ◆ **The OEP, corresponding to : 24,000 DT;**
 - ◆ **The GDA of the perimeter of Sejnane, corresponding to : 340,000 DT;**
 - ◆ **The beneficiaries, corresponding to: 320,000 DT;**
- - For the perimeter of Nefza : **11,043,650 DT**, that will be on the budget of the CRDA of Beja;

According to these tables, these budgets will be distributed out of the 5 coming years, 17% will be locked up out of the three first years for the perimeter of Sejnane and 26% for the perimeter of Nefza;

Table n° IV-39 : Expenses planner for the perimeter of Nefza

| | Number | Titles | 2006 | 2007 | 2008 | 2009 | 2010 | TOTAL (DT) |
|-----------------------|--------|---|----------------|------------------|----------------|------------------|------------------|-------------------|
| Very Important | 1-A.01 | supplementary works at the shared hydrants | 30 730 | 30 730 | 30 730 | 30 730 | 30 730 | 153 650 |
| | 1-D.01 | Creation of wind breaks networks | 50 000 | | | | | 50 000 |
| | 1-E.01 | Water and soils of catchment areas around the perimeters preserving works | 30 000 | 828 000 | 92 000 | | | 950 000 |
| Important | 1-B.01 | Follow up of drained water quality and colected soils at the end of the drainage networks | 90 000 | | | 4 000 000 | 4 000 000 | 8 090 000 |
| | 1-C.01 | Extension and improving of the tracks networks | 560 000 | 560 000 | 560 000 | 60 000 | 60 000 | 1 800 000 |
| | | Global cost allocation a year (DT) | 760 730 | 1 418 730 | 682 730 | 4 090 730 | 4 090 730 | 11 043 650 |
| | | On the CRDA budget of Beja | 760 730 | 1 418 730 | 682 730 | 4 090 730 | 4 090 730 | 11 043 650 |
| | | Expenses distribution out of the five excpted years | 7% | 13% | 6% | 37% | 37% | 100% |

Table n° IV-40: Expenses planner for the perimeter of Sejnane

| | Number | Titles | 2006 | 2007 | 2008 | 2009 | 2010 | TOTAL (DT) |
|----------------|--------|---|----------------|------------------|------------------|------------------|------------------|-------------------|
| Very Important | 1-A.01 | supplementary works at the shared hydrants | 35 000 | 35 000 | 35 000 | 35 000 | 35 000 | 175 000 |
| | 1-A.03 | Execution of the excepted intakes of the OEP of Sejnane | 21 600 | 2 400 | | | | 24 000 |
| | 1-D.01 | Creation of wind breaks networks | 202 770 | 113 570 | 181 285 | 164 420 | | 662 045 |
| | 1-E.01 | Water and soils of catchment areas around the perimeters preserving works | 180 000 | 810 000 | 90 000 | | | 1 080 000 |
| Important | 1-A.02 | Creation of pilot shared hydrants | | 30 000 | 120 000 | 220 000 | 630 000 | 1 000 000 |
| | 1-B.01 | Follow up of drained water quality and colected soils at the end of the drainage networks | | 60 000 | | 6 000 000 | 6 000 000 | 12 060 000 |
| | 1-C.01 | Extension and improving of the tracks networks | | 584 000 | 584 000 | 584 000 | 1 584 000 | 3 336 000 |
| | | Global amount allocation a year | 439 370 | 1 634 970 | 1 010 285 | 7 003 420 | 8 249 000 | 18 337 045 |
| | | On the CRDA budget of Bizerte | 417 770 | 1 612 770 | 931 085 | 6 858 220 | 7 833 200 | 17 653 045 |
| | | On the OEP budget | 21 600 | 2 400 | | | | 24 000 |
| | | On the GDA budget of the perimeter of Sejnane | | 10 200 | 40 800 | 74 800 | 214 200 | 340 000 |
| | | On the beneficiaries budget | | 9 600 | 38 400 | 70 400 | 201 600 | 320 000 |
| | | Expenses distribution out of the excepted five years | 2% | 9% | 6% | 38% | 45% | 100% |

IV.4 - TS-P11 Project specific action plan

In the following is presented a listing regarding the priority actions to be put into place to solve all the problems raised to the optimum hydraulic development of the 2.900 ha that were realized within the framework of TS-P11 Project.

IV.4.1 - TS-P11 Project specific actions that solve beneficiaries concerns

Actions 1-A : Improvement of irrigation networks

Action 1-A.01 : Improvement of irrigation network supply hydraulic conditions

- Objective : To improve irrigation network supply hydraulic conditions in order to develop the perimeter s' intensification rate.
- Targets : irrigation hydrants and fractional water meters of Goubellat perimeter
- chronogram : 2 years.
- Place : Goubellat perimeter.
- Steps : maintenance district of Beja has to sign a market with a hydromechanical society to :
 - To size again and change the flow control valves with an equipment flow of 0,6 l/s/ha instead of 0,4 l/s/ha for all irrigation hydrants .
 - Execute and equip one pressure reductive work on the irrigation branch of el Kharrouba, because of the pressure surplus at the hydrants which goes beyond 4 bars, this work will have to be composed of the following equipments :
 - Two direct flood-gate DN 300;
 - One pressure reductive DN 200;
 - One dismantling joint DN 300;
 - One air valve DN 80;
 - cuffs, Tee and reductive and connecting cone ;
 - Add divisional meters as the electromagnetic flowmeter on the antennas departures of the sectors division into sections works:
 - Chikh El Widyan : départ d'antenne DN 250, feeding 41 bornes;
 - Dour Ismail : antenna departure DN 150, feeding 4 bornes;
 - El Kharrouba : antenna departure DN 250, feeding 6 bornes ;
 - El Gammarthi : antenna departure DN 150, feeding 4 bornes;.
 - The budget of this market would be dependent on the CRDA of Beja;
- Implementation : easy with the maintenance district support
- Urgency : high, because of the pressure surplus problems, which led to water leak at the farmers parcels level, to water deficit at the hydrant and to risks of bad water counting in the antennas departures are not controlled by the divisional meters;.
- Importance : very important in order to well develop the irrigation network and therefore the perimeter s' intensification rate.
- Approximative amount : 28,750 DT

Table n° IV-41 : Improving the the hydraulic conditions of the irrigation network service

| Activity | Qty | Unit amount | Quantities allocated a year | | | | | | | | | | Total amount |
|--|-----|-------------|-----------------------------|--------|---------------|--------------|------|------|------|------|------|------|---------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken the maintenance district of Beja through an hydromechanical society | | | | | | | | | | | | | |
| Market provision and setting: | | | | | | | | | | | | | |
| Flows limiters | 355 | 50 | JAN-MAR | 15 975 | MAR | 1 775 | | | | | | | 17 750 |
| pressure reductive work | 1 | 5 000 | JAN-MAR | 4 500 | MAR | 500 | | | | | | | 5 000 |
| divisional meters | 4 | 1 500 | JAN-MAR | 5 400 | MAR | 600 | | | | | | | 6 000 |
| global amount allocated a year (DT) | | | | | | | | | | | | | |
| On the CRDA budget of Béja | | | | | 25 875 | 2 875 | | | | | | | 28 750 |
| Total amount (DT) | | | | | 25 875 | 2 875 | | | | | | | 28 750 |

Action 1-B : Creation of windbreak networks

Action 1-B.01 : Creation of wind-break networks

- Objective : To install windbreak peripheral and secondary network inside the perimeter ;
- Targets : Beja CRDA Forests Department.
- Chronogram : 2 years in dormant vegetal season
- Place : Goubellat perimeter.
- Process:
 - The forest district has to relaunch and sign the market with a forest works company to create 80 km of wind-breaks, that will be set inside and outside the perimeter ;
 - The credit line of such a market has already existed for the CRDA of Beja, since the year 2005, because the forest district has canceled the contract with the chosen company which had not respected the market clauses ;
- Implementation : Easy with the forest district support ;
- Urgency : high, particularly in winter, because of northwest winds violence.
- Importance : Important, in order to protect the perimeter against winds devastating effects and avoid fertile grounds transportation.
- Global amount: 160,000 DT.

Table n° IV-42 : Creation wind breaks networks

| Activity | Qty | Unit amount | Quantities allocation a year | | | | | | | | | | Total amount |
|---|-----|-------------|------------------------------|----------------|------|---------------|------|------|------|------|------|------|----------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken the forest district through forest works company | | | | | | | | | | | | | |
| Execution markets of the wind breaks networks | 80 | 2 000 | JAN-MAR | 144 000 | MAR | 16 000 | | | | | | | 160 000 |
| global amount allocated a year (DT) | | | | | | | | | | | | | |
| On the CRDA budget of Beja | | | | 144 000 | | 16 000 | | | | | | | 160 000 |
| Total amount (DT) | | | | 144 000 | | 16 000 | | | | | | | 160 000 |

Action 1-C : Protection of the perimeter against erosion

Action 1-C.01:: Water and soils of catchment areas around the perimeters preserving works

- Objective : To lead studies and CES works of the catchment areas around the perimeter ;
- Targets : Beja CRDA CES Department
- Planner:: 2 years.
- Place : catchment areas around the perimeter ;
- Process: the CES district of the CRDA has to :
 - Sign contracts with engineering offices to lead detailed studies the goal is :
 - ◆ The fitting out of the CES works at catchment areas around the perimeter level, we evaluate 1350 ha to fit out by seatsand plantation;
 - Afterwards, sign contracts with public works companies for :
 - ◆ The execution the CES works expected by the planning offices ;
 - These works budget will be dependent on the CRDA of Beja;
- Implementation : Easy, with the planning offices and the CES district of Beja support ;
- Urgency : high because of the concentrated hydraugraphic network around the perimeter in one hand, and its closeness to Mejerdah river in the other hand.
- Importance : Important, in order to protect the hydraulic infrastructure and tracks network against silting up and the regressive erosion
- Global amount : 775,000 DT;

Table n° IV-43 : Travaux de conservation des eaux et des sols des bassins versants autour du périmètre

| Activité | Qty amount | Unit Unitaire | Quantities allocated a year | | | | | | | | | | |
|--|------------|---------------|-----------------------------|---------------|----------------|---------------|---------|--------|------|------|------|----------------|--------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | Total amount |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken the districts CES with planning office and public works companies | | | | | | | | | | | | | |
| Study market for | | | | | | | | | | | | | |
| Planning Study of the CES works | ENS | 75 000 | JAN-August | 75 000 | | | | | | | | 75 000 | |
| CES works market : | | | | | | | | | | | | | |
| Planning the catchment areas around the perimeters (1350 ha) | ENS | 700 000 | | | JAN-OCT | 630 000 | OCT-DEC | 70 000 | | | | 700 000 | |
| global amount allocated a year (DT) | | | | | | | | | | | | | |
| On the CRDA budget of Béja | | | | 75 000 | 630 000 | 70 000 | | | | | | 775 000 | |
| Total amount (DT) | | | | 75 000 | 630 000 | 70 000 | | | | | | 775 000 | |

IV.4.2 - Summary tables of TS-P11 project specific action plan

Thus the actions proposed to complementary financing represent **963,750 DT**, according to the , this budget will be dependent on the CRDA of Beja;

According to Table n° IV-44, this budget will be distributed out of the three following years, with an average of 67% that will be locked up along the second year;

Table n° IV-44 : Expenses planner for the perimeter of Goubellat

| | Number | Titles | 2006 | 2007 | 2008 | 2009 | 2010 | TOTAL (DT) |
|----------------|--------|---|----------------|----------------|---------------|------|------|----------------|
| Very Important | 1-A.01 | Improving the the hydraulic conditions of the irrigation network service | 25 875 | 2 875 | | | | 28 750 |
| | 1-B.01 | Creation of wind breaks networks | 144 000 | 16 000 | | | | 160 000 |
| | 1-C.01 | Water and soils of catchment areas around the perimeters preserving works | 75 000 | 630 000 | 70 000 | | | 775 000 |
| | | global cost allocated a year (DT) | 244 875 | 648 875 | 70 000 | | | 963 750 |
| | | On the CRDA budget of Beja | 244 875 | 648 875 | 70 000 | | | 963 750 |
| | | Expenses distribution out of the expected five years | 25% | 67% | 7% | | | 100% |

IV.5 - TS-P13 Project specific action Plan

In the following is presented a listing regarding the priority actions to be put into place to solve all the problems raised to the optimum hydraulic development of the 2.100 ha that were realized within the framework of TS-P13 Project

IV.5.1 - TS-P13 Project specific actions that solve beneficiaries concerns

Actions 1-A : Improvement of the irrigation network

Action 1-A.01 : Additional equipments to the shared hydrants

- Objective: To make easy the exploitation at the level of the shared hydrants of each perimeter.
- Targets : each perimeter s' shared hydrants, distributed as the following:
 - 242 shared hydrants of the perimeter of Fernana.
 - 168 antennas departures of Hammam Bourguiba perimeter.
- Planner : 5 years.
- Place : Fernana and Hammam Bourguiba perimeters.
- Process : The maintenance district manager of the CRDA of Jendouba has to :
 - Equip the shared hydrants by multiplugs further to invite bids or a purchase consultation spread on five years, we account:
 - 242 multiplugs for the perimeter of Fernana ;
 - 168 multiplugs for the perimeter of Hammam Bourguiba ;
 - Assign to each shared hydrant 4 farmers who will be the vis à vis for each intake water ; Impose an intake in a turn;
- Implementation : easy with the maintenance district of the CRDA of Jendouba, the perimeters managers and the GDA support;
- Urgency : High for the perimeter of Fernana, because of the potentiall billing conflicts between the farmers using the shared hydrants, and the water transgression by the creation of illegal intakes on the irrigation antennas.
Not for the moment for the perimeter of Hammam Bourguiba, because of land problems ;
- Importance : very important in order to stop all the kinds of water violation and make easier the perimeter s' collective hydrants exploitation.
- Global amount : 143,500 DT, on the CRDA budget of Jendouba ;

Table n° IV-45: Supplementary works at the shared hydrants

| Activity | Qty | Unit amount | Quantities allocated a year | | | | | | | | | | Total amount |
|---|-----|-------------|-----------------------------|---------------|---------|---------------|---------|---------------|---------|---------------|---------|---------------|----------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken by the maintenance district of the CRDA of Jendouba with the perimeters managers and the GDA support | | | | | | | | | | | | | |
| Equipments of the shared hydrants by multiplugs | | | | | | | | | | | | | |
| For the perimeter of Fernana | 242 | 350 | JAN-DEC | 16 940 | JAN-DEC | 16 940 | JAN-DEC | 16 940 | JAN-DEC | 16 940 | JAN-DEC | 16 940 | 84 700 |
| For the perimeter of Hammam Bourguiba | 168 | 350 | | | JAN-DEC | 11 760 | JAN-DEC | 11 760 | JAN-DEC | 11 760 | JAN-DEC | 23 520 | 58 800 |
| Global cost allocation a year (DT) | | | | | | | | | | | | | |
| For the perimeter Fernana | | | | 16 940 | | 16 940 | | 16 940 | | 16 940 | | 16 940 | 84 700 |
| For the perimeter of Hammam Bourguiba | | | | | | 11 760 | | 11 760 | | 11 760 | | 23 520 | 58 800 |
| On the CRDA budget of Jendouba | | | | 16 940 | | 28 700 | | 28 700 | | 28 700 | | 40 460 | 143 500 |

Action 1-B : Creation of windbreak networks

Action 1-B.01 : Supervision of waters and grounds quality collected at sanitation networks exit

- Objective: To prevent any ground deterioration by salinity linked to fertilization and characterize saline transfer degree at the level of Bou Hertma dams in order to prevent any deterioration and contamination

- Targets : Soils district of the CRDA of Jendouba and the general direction of the water resources DGRE ;.

- Chronogram : 5 years

- Place : Fernana and Hammam Bourguiba perimeters.

- Process :
- The soils and maintenance districts of the CRDA of Jendouba, with the general direction of the water resources support have to:
 - Prepare and launch invite bids for the setting up of piezometer inside each perimeter, to follow the water tables ascent,
 - Follow the soil quality of each perimeter ;
 - With the perimeters evolution, an execution study of the draining networks has to be launched, we evaluate :
 - 900 ha to drain for the perimeter of Fernana ;
 - 500 ha to drain for the perimeter of Hammam Bourguiba ;

- Implementation : easy with support of the INGRES.

- Urgency : not immediately because of the land problems of the perimeter of Hammam Bourguiba and the development of only 130 ha of the perimeter of Fernana ;

- Importance : Important, to avoid the damage of the perimeters soils on the one hand, and the plants asphyxia by the valleys ascent on the other hand ;

- Global amount : 5,690,000 DT, on the CRDA budget of Jendouba ;

Table n° IV-46: Follow up of the soils quality and water table ascent of the perimeter

| Activity | Qty | Unit amount | Quantities allocation a year | | | | | | | | | | |
|--|--------|-------------|------------------------------|---------------|---------|---------------|---------|------|---------|------------------|---------|------------------|------------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | Total amount |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken by the maintenance and soils districts and the water resources general direction: | | | | | | | | | | | | | |
| Setting piezometers for | | | | | | | | | | | | | |
| Perimeter of Fernana | 20 | 3 000 | JAN-DEC | 60 000 | | | | | | | | 60 000 | |
| Perimeter of Hammam Bourguiba | 10 | 3 000 | | | JAN-DEC | 30 000 | | | | | | 30 000 | |
| Study and execution of drainage network | | | | | | | | | | | | | |
| Perimeter of Fernana | 900 ha | 4 000 | | | | | | | Jan-DEC | 1 800 000 | JAN-DEC | 1 800 000 | 3 600 000 |
| Perimeter of Hammam Bourguiba | 500 ha | 4 000 | | | | | | | Jan-DEC | 1 000 000 | JAN-DEC | 1 000 000 | 2 000 000 |
| Follow up of the soils quality and water table ascent plan | | | | | | | | | | | | | |
| Perimeter of Fernana | | | | | JAN-DEC | | JAN-DEC | | JAN-DEC | | JAN-DEC | | |
| Perimeter of Hammam Bourguiba | | | | | JAN-DEC | | JAN-DEC | | JAN-DEC | | JAN-DEC | | |
| Global cost allocation a year (DT) | | | | | | | | | | | | | |
| For the perimeter of Fernana | | | | 60 000 | | | | | | 1 800 000 | | 1 800 000 | 3 660 000 |
| For the perimeter of Hammam Bourguiba | | | | | | 30 000 | | | | 1 000 000 | | 1 000 000 | 2030000 |
| On the budget of the CRDA of Jendouba | | | | 60 000 | | 30 000 | | | | 2 800 000 | | 2 800 000 | 5 690 000 |

Action 1 C : Extension and improvement of tracks networks

Action 1-C.01 : Extension of tracks networks

- Objective : To improve transportation conditions inside the perimeters
- Targets : Beja and Bizerte CRDA PPI departments and Equipment Regional Departments .
- Chronogram : 3 years for Fernana perimeter
2 years for Hammam Bourguiba perimeter
- Place : Fernana and Hammam Bourguiba perimeters.
- Process: with the evolution of the development of each perimeter, the maintenance district of the CRDA has to launch and sign one market a year with a VRD company to :
 - Execute secondary tracks recommended by the AFA, we evaluate to about 25 Km for the perimeter of Fernana ;
For Hammam Bourguiba, we have to wait for the agrarian reform of the AFA;
 - Improve the durability of the principal and secondary tracks through :
 - ◆ The realization of the bicoat on all the tracks, 68 Km for the perimeter of Fernana and 3 Km for the perimeter of Hammam Bourguiba;If necessary, the fitting out of concreted and clearing of pipes and scuppers;
- Implementation : Difficult because of beneficiaries reluctances for the recent tracks crossing their plots .
- Urgency : high because the majority of hydrants are installed in uneven and unstable places .
- Importance : Important, to make easier agricultural work and goods transportation, and in the other hand, to make easier the network repairing and control by the maintenance team.
- Global amount: 1,463,000 DT, on Jendouba's CRDA budget;

Table n° IV-47: Extension and improving the tracks networks

| Activity | Qty | Unit amount | Quantities allocation a year | | | | | | | | | | |
|--|-----|-------------|------------------------------|------|---------|----------------|---------|----------------|---------|----------------|---------|----------------|------------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | Total amount |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken by the maintenance district and the equipment departmental direction of Jendouba: | | | | | | | | | | | | | |
| Execution of the secondary tracks networks | | | | | | | | | | | | | |
| Perimeter of Fernana | 25 | 50 000 | | | JAN-DEC | 208 333 | JAN-DEC | 208 333 | JAN-DEC | 208 333 | JAN-DEC | 625 000 | 1 250 000 |
| Improving of the durability of the existing tracks and of the secondary networks | | | | | | | | | | | | | |
| Perimeter of Fernana | 68 | 3 000 | | | JAN-DEC | 51 000 | JAN-DEC | 51 000 | JAN-DEC | 51 000 | JAN-DEC | 51 000 | 204 000 |
| Perimeter of Hammam Bourguiba | 3 | 3 000 | | | | | JAN-DEC | 3 000 | JAN-DEC | 3 000 | JAN-DEC | 3 000 | 9 000 |
| Global cost allocation a year (DT) | | | | | | | | | | | | | |
| For the perimeter of Fernana | | | | | | 259 333 | | 259 333 | | 259 333 | | 676 000 | 1 454 000 |
| For the perimeter of Hammam Bourguiba | | | | | | | | 3 000 | | 3 000 | | 3 000 | 9 000 |
| On the budget of the CRDA of Jendouba | | | | | | 259 333 | | 262 333 | | 262 333 | | 679 000 | 1 463 000 |

1- D : Creation of windbreak networks

Action 1-D.01 : Realization of windbreaks external network

- Objective : To install peripheral and secondary windbreaks network on each perimeter
- Targets : Jendouba CRDA Foret district and GDA
- Planner : 2 years in vegetal dormant season.
- Place : Fernana and Hammam Bourguiba perimeters
- Process : Jendouba CRDA Forest department and GDA have to:
 - Heighten the farmers of the wind breaks roles, through the creation of sensitization seminars every year ;
 - During the Tree Day, encourage the farmers to plant the maximum of trees on the principal axes of the tracks,
 - The wind breaks networks to fit out are estimated at :
 - 45 Km for the perimeter of Fernana;
 - 6 Km for the perimeter of Hammam Bourguiba;the number of plantation will be dependent on the CRDA;
- Implementation : Difficult, because of the beneficiaries abuse at the perimeter level of Fernana, 20 km of existing network have been damaged ;
- Urgency : high, in particular in winter, because of northwest region violent winds.
- Importance : Important, in order to protect the perimeters against winds devastating effects and avoid the superficial horizon air transportation

Global amount : 357,000 DT, dependent on the CRDA of Jendouba

Table n° IV-48: Creation of wind breaks networks

| Activity | Qty | Uni amount | Quantities allocation a year | | | | | | | | | | Total amount |
|---|-----|------------|------------------------------|---------------|----------|---------------|----------|---------------|----------|---------------|----------|---------------|----------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken by the forest district and the GDA : | | | | | | | | | | | | | |
| Preparing sensitization seminars for the farmers | | | | | | | | | | | | | |
| Perimeter of Fernana | | | November | | November | | November | | November | | November | | |
| Périmètre de Hammam Bourguiba | | | | | November | | November | | November | | November | | |
| brise vents plantation at each tree day | | | | | | | | | | | | | |
| Perimeter of Fernana (km) | 45 | 7000 | November | 63000 | November | 63000 | November | 63000 | November | 63000 | November | 63000 | 315000 |
| Perimeter of Hammam Bourguiba (km) | 6 | 7000 | | | November | 10500 | November | 10500 | November | 10500 | November | 10500 | 42000 |
| Global cost allocation a year (DT) | | | | | | | | | | | | | |
| For the perimeter of Fernana | | | | 63000 | | 63000 | | 63000 | | 63000 | | 63000 | 315000 |
| For the perimeter of Hammam Bourguiba | | | | | | 10500 | | 10500 | | 10500 | | 10500 | 42000 |
| On the budget of the CRDA of Jendouba | | | | 63 000 | | 73 500 | | 73 500 | | 73 500 | | 73 500 | 357 000 |

Action 1-E : Perimeters protection against erosion

Action 1-E.01 : Studies of CES structures to be put into place inside and river basins of the rivers crossing the perimeters.

- Objective : To study protection needs against the two perimeters grounds erosion
- Targets : Jendouba CRDA CES PPI Departments.
- Planner: 2 years.
- Place : Fernana and Hammam Bourguiba perimeters.
- Process : the CES district of the CRDA of Jendouba has to :
 - Singn contracts with a planning office to :
 - ◆ Study the CES works to implement at the catchment areas around the permeter level, as : Gabion, drystone threshold...;
 - ◆ Study the drainage of the 150 ha around Oued Ghrib in the perimeter of Fernana;
 - ◆ Protect the the oueds slopes : Gzala et Magroun crossing the perimeter of Fernana;
 - ◆ Protect the the oued slopes: Mellila crossing the perimeter of Hammam Bourguiba;
 - Later on, sign a market with a public works company to :
 - ◆ Execute CES works established by the planning office ;
 - ◆ Execute a supplementary drainage network of Oued Ghrib, around 3 Km;
Correct the oueds meanders by executing groynes;
- Implementation : easy, with support of the DG/ACTA and the consulting office
- Urgency : high, because of the concentrated hydrographic network crossing each perimeter and the instability of their lands.
- Importance : very important in order to protect the perimeters grounds against the significant subsidence and road and hydraulic infrastructure against silting up.
- Global amount : 3,300,000 DT on the CRDA budget of Jendouba

Table n° IV-49 : Water and soils of catchment areas around the perimeters preserving works

| Activity | Qty | Unit amount | Quantities allocation a year | | | | | | | | | | Total amount |
|---|-----|-------------|------------------------------|---------------|------------|----------------|---------|----------------|---------|------------------|---------|------------------|--------------|
| | | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | |
| | | | Date | Cost | Date | Cost | Date | Cost | Date | Cost | Date | Cost | |
| The necessary steps taken by the districts CES with planning office and public works companies | | | | | | | | | | | | | |
| Study markets for: | | | | | | | | | | | | | |
| Setting up study of CES works | | | | | | | | | | | | | |
| The perimeter of Fernana | ENS | 50 000 | Jan-August | 50 000 | | | | | | | | 50 000 | |
| The perimeter of Hammam Bourguiba | ENS | 30 000 | | | JAN-August | 30 000 | | | | | | 30 000 | |
| CES works markets for : | | | | | | | | | | | | | |
| Fitting out of catchment areas for: | | | | | | | | | | | | | |
| Perimeter of Fernana | ENS | 1 800 000 | | | JAN-DEC | 540 000 | JAN-DEC | 540 000 | JAN-DEC | 720 000 | | 1 800 000 | |
| perimeter of Hammam Bourguiba | ENS | 1 200 000 | | | | | JAN-DEC | 360 000 | JAN-DEC | 360 000 | JAN-DEC | 480 000 | |
| Execution of a supplementary drainage network for: | | | | | | | | | | | | | |
| Perimeter of Fernana (in Km) | 3 | 50 000 | | | JAN-DEC | 45 000 | JAN-DEC | 45 000 | JAN-DEC | 60 000 | | 150 000 | |
| Oueds protection by groynes : | | | | | | | | | | | | | |
| Perimeter of Fernana | 5 | 10 000 | | | JAN-DEC | 15 000 | JAN-DEC | 15 000 | JAN-DEC | 20 000 | | 50 000 | |
| Perimeter of Hammam Bourguiba | 2 | 10 000 | | | | | JAN-DEC | 6 000 | JAN-DEC | 6 000 | JAN-DEC | 8 000 | |
| Global cost allocation a year (DT) | | | | | | | | | | | | | |
| For the perimeter of Fernana | | | | | | | | | | | | | |
| | | | | 50 000 | | 600 000 | | 600 000 | | 800 000 | | 2 050 000 | |
| For the perimeter of Hammam Bourguiba | | | | | | | | | | | | | |
| | | | | | | 30 000 | | 366 000 | | 366 000 | | 488 000 | |
| On the budget of the CRDA of Jendouba | | | | | | | | | | | | | |
| | | | | 50 000 | | 630 000 | | 966 000 | | 1 166 000 | | 488 000 | |
| | | | | | | | | | | | | 3 300 000 | |

IV.5.2 - Summary tables of TS-P13 project specific action plan

- The proposed actions to a complementary financing represent **10,941,740 DT**, according to Table n° IV-50 and Table n° IV-51, this amount is distributed as follows :

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- For the perimeter of Fernana : **7,563,700 DT** ;
- For the perimeter of Nefza : **3,378,040 DT** ;

According to these tables, these budgets will be dependent on the CRDA of Jendouba and distributed out of the 5 following years, with 2% locked up the first year for each perimeter ;

Table n° IV-50: Expenses planner for the perimeter of Fernana

| | Number | Titles | 2006 | 2007 | 2008 | 2009 | 2010 | TOTAL (DT) |
|-----------------------|--------|---|----------------|----------------|----------------|------------------|------------------|------------------|
| Very Important | 1-A.01 | supplementary works at the shared hydrants | 16 940 | 16 940 | 16 940 | 16 940 | 16 940 | 84 700 |
| | 1-D.01 | Creation of wind breaks networks | 63 000 | 63 000 | 63 000 | 63 000 | 63 000 | 315 000 |
| | 1-E.01 | Water and soils of catchment areas around the perimetr preserving works | 50 000 | 600 000 | 600 000 | 800 000 | | 2 050 000 |
| IMPORTANT | 1-B.01 | Follow up of the soils quality and water table ascent of the perimeter | 60 000 | | | 1 800 000 | 1 800 000 | 3 660 000 |
| | 1-C.01 | Extension and improvement of the tracks networks | | 259 333 | 259 333 | 259 333 | 676 000 | 1 454 000 |
| | | Global cost allocation a year (DT) | 189 940 | 939 273 | 939 273 | 2 939 273 | 2 555 940 | 7 563 700 |
| | | On the CRDA budget of Jendouba | 189 940 | 939 273 | 939 273 | 2 939 273 | 2 555 940 | 7 563 700 |
| | | Expenses ditribution out of the five excepted years | 3% | 12% | 12% | 39% | 34% | 100% |

Table n° IV-51 : Expenses planner for the perimeter of Hammam-Bourguiba

| | Number | Titles | 2006 | 2007 | 2008 | 2009 | 2010 | TOTAL (DT) |
|----------------|--------|---|-----------|---------------|----------------|------------------|------------------|------------------|
| Very Important | 1-A.01 | supplementary works at the shared hydrants | | 11 760 | 11 760 | 11 760 | 11 760 | 47 040 |
| | 1-D.01 | Creation of wind breaks networks | | 10 500 | 10 500 | 10 500 | 10 500 | 42 000 |
| | 1-E.01 | Water and soils of catchment areas around the perimeters preserving works | | 30 000 | 366 000 | 366 000 | 488 000 | 1 250 000 |
| IMPORTANT | 1-B.01 | Follow up of the soils quality and water table ascent of the perimeter | | 30 000 | | 1 000 000 | 1 000 000 | 2 030 000 |
| | 1-C.01 | Extension and improvement of the tracks networks | | | 3 000 | 3 000 | 3 000 | 9 000 |
| | | Global cos allocated a year (DT) | | 82 260 | 391 260 | 1 391 260 | 1 513 260 | 3 378 040 |
| | | On the CRDA budget of Jendouba | | 82 260 | 391 260 | 1 391 260 | 1 513 260 | 3 378 040 |
| | | Expenses ditribution out of the five excepted years | 0% | 2% | 12% | 41% | 45% | 100% |