

Summary of the project

"To help the stone crushing women from Cobly"

To know more about ASF = Amour Sans Frontière : www.amour.sans.frontiere.org

Discover the project : <http://projetshumanitaires.blog.free.fr>

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I-The project

“ To set up a manual device for crushing stones
to relieve women and their children from this work”

During his trip through Benin 2012, André Combet, a volunteer of our NGO (ASF) , discovered a quarry where, under blazing sun and 45°C temperature, women and children crushed stones by hand!

Some of them showed evidence of former body and head injuries, and new open wounds in spite of poor protection from pieces of used tyre!

Furthermore those people, inhaling dust, are susceptible to silicosis, an incurable and lethal disease strongly fought against by the World Health Organisation

However this job allows the women to raise their family and the kids to pay the school fees

With a mechanical help it would be possible to improve efficiency and cut the many dangers of the job.

It is what André Combet, after intensive research, actually discovered: the only manufacturer of a manually powered crushing machine!

And now all what remains is to implement this project together

II-Facts about Cobly (Benin)

Benin is a relatively small state in West Africa, located between Nigeria to the east, Togo to the west, Burkina Faso in the North and in the south bordering the Guinean Gulf part of the Atlantic Ocean. Benin is 113 000 km² wide, with a population of 9,6 Mios inhabitants. Porto Novo is the capital, but Cotonou is by far the largest city and the economical center of the country

Due to the lack of natural and mineral resources in contrast to many others African states, the country ranks as the 20th poorest in the world. Its economy is mainly based on traditional agriculture which employs 2/3 of the local manpower. **Nevertheless, French speaking Benin is called “ Quartier Latin*” of west Africa. As a matter of fact many well educated Beninois occupy high positions as civil servants or work in liberal professions, abroad, in other countries of the former French colonial empire of West and Central Africa .**

**Quartier Latin is the university district inside Paris*

A possible explanation for this might be the heritage of the prestigious pre-colonial kingdom of Abomey one within the best organised political power in Africa with strong cultural and educational traditions .Any how, nowadays, many Beninois prove to be clever and entrepreneurial.

Cobly is a village in the North West of Benin, near Tanguieta, in the “*Department*” of Atacora. The village is 825 km²wide and has 47239 inhabitants. Near the mountains of Atacora the temperatures are milder than those of the south. The rainy season extend from April to October. It is recorded the annually average of 1350mm/year, but sometimes they are very violent storms

III-Partners

Benin:

- **Father Frederic Noanti**, priest of Cobly parish, has been for years a very reliable partner of ASF and other small French NGO. ASF is presently financing the construction of a school on the territory of the parish.

The task of father Noanti is now to collect all necessary data to implement the program, and to keep contact with the women working in the quarry.

- **Marcelin Combetto**, a lay person, Frederic’s assistant, is in charge of the organisation of the work, the payroll and the relations with the “customers”.

France

- **ASF** assume the validity of the project, arranges the communication and information, and possibly co-finance the project on top of a micro-credit program (see below § ...)
- **Banque Populaire** Loire et Lyonnais will support the project to compete for the trophy “Porteur de projets dans l’ESS”. If it succeeds the grant will reach 5000 €.(see [form below](#))
- **Brigitte Bonnetain**, a volunteer at ASF, presently studying to graduate and become Chief Executive of an organisation devoted to solidarity and social tasks (ESS = établissement social et solidaire)
Brigitte set up the project aiming to a sociological and economical focus, gather the data, study its feasibility. She is in charge of drawing up the file which she will submit to the sponsor, the Banque Populaire
- **André Combet**, former engineer in the Chemical Industry, is at the origin of the project. He is assisting Brigitte in the conception of the project and possibly, in the future, will help the partners in Cobly for the implementation of the program.
- **Jean Robert Besse**, originally working in the automotive industry, as well as a volunteer at ASF will cooperate with André

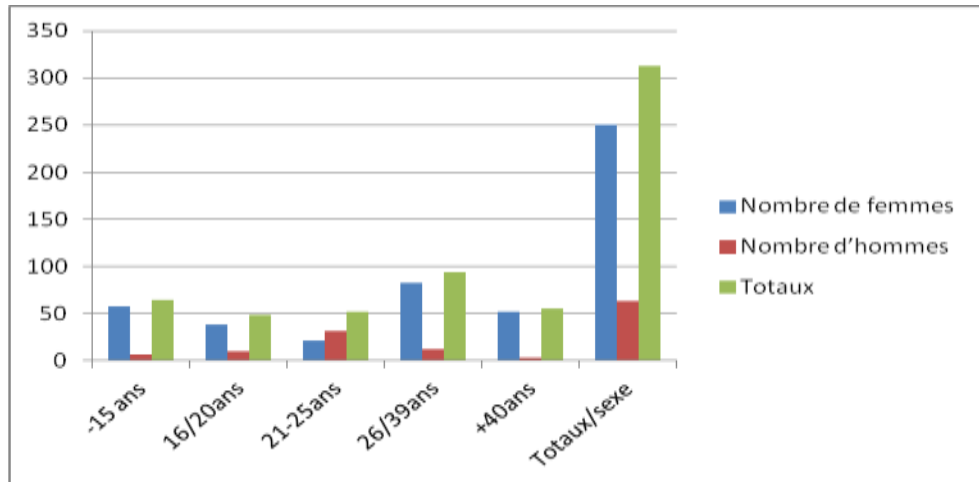
IV – Market Study

As the way of thinking of African people is quite different from ours it has not been very easy to get precise answers to our questions

- **Stone type?** : 80% granite
- **Competitors?** Some other groups in the neighbouring city Tanguieta, but the group concerned with the project is the largest within the vicinity of 30 km. They are possibly other groups far away in the *Department* Atacora
- **Customers and final uses?** Building of bridges, classrooms, houses. Presently they have as a customer a Chinese company which build a big dam in Tanguieta 35 km away from Cobly
- **Prices?:** are directly negotiated with customers. The price is approximately 25000 CFA/ metric ton (= 37,5 €)
- **How long to sell the production?** Very irregular, depending on the season and the final use. During the dry season it is much quicker.
- **Possible new prospects in case of increased production? :**
 - in Cobly 1 to3,
 - others nearby in Benin 8 (mainly in the Pendjari region),
 - abroad 5 (North Togo – south border of Burkina Faso)
- **Which kind of prospects?:**
 - small enterprises 3,
 - middle 4,
 - big companies 6
- **Tools presently used**
 - in good condition : burins, barrels, shovels
 - in medium condition : hammers, sledgehammers, basins, wheelbarrow
 - in bad condition : axes, hoes, picks

V- Workforces

1) Number of workers per year participating to the job on the working site



□ female □ male □ total

< 15 years 16-20 years 21-25 years 26-39 years > 40 years total per sex analysis

- Women, (whatever their age) are 80 % of the workforce
- Teenagers are 36%
- Young girls make up 23 % of the female and 89 % of the teenagers
- Girls and young women less than 21 years old are 38% of the female workforce
- Females over 21 years old are 62% of the female workforce.

The female workforce belongs to many different ethnic groups

Still very young the women feel a need to work on the crushing site of Cobly. As actual or future mothers they are dedicated to the job; They consider it as an opportunity to survive; For this reason the study of this project is definitely aimed at helping.. those women!

2) Hours of work by the women

Age category	before16	16 to 20	21 to 25	26 to39	40 and after	TOTAL
number of women	57	38	21	82	52	250
hours per day	8	12	12	10	8	
days per week	3	5	7	7	7	
weeks per month	4,3	4,3	4,3	4,3	4,3	
effective number of months worked	6	6	10	10	10	
Total women/year	619	1 548	3 612	3 010	2 408	
Grand TOTAL hours /age	35 294	58 824	75 852	246 820	125 216	542 006

Average working time in hours per woman / year **2168**
 Average working time in hours per woman / month **181**
 Average working time in hours per 90 woman / month **16 260**

During the rainy season the work has to be totally interrupted for some days or even weeks. Therefore, on average, 2 months of the year have to be considered as lost. Furthermore father Frederic has explained that only 90 of the 250 women in the work force can work at the same time on the site.

VI – Business plan

1) Actual output (metric tons)

	Weekly	Monthly	Yearly	average for each age bracket	Total output/year per 90 women
Female under 20 of age	1	4	48	34,2	136
Female from 21 to 40	2	8	96	55,8	446,4

TOTAL per year					582,4
TOTAL per month					48,53
Monthly revenue at 37,5 € per tonne			1820 euros		

2) Wages

Age bracket	before16	16 to 20	21 to 25	26 to39	40 and after
Franc CFA *	4000	5000	6000	8000	9000
Euros	6	7,50	9	12	13,50

* franc CFA = local currency

<21 years of age	medium salary/ month	6,75 € /person	TOTAL for this age bracket	229,50€
>21	“	“	TOTAL	966,50€
Average		13,28 €	TOTAL	1195 €

3) Monthly data

Volume of production	48,5 tonnes
Salaries amount per tonne	24,65 €
Raw materials (stone)/tonne	2,06 €
Production costs (24,65 + 2,06) x 48,5 =	1295 €
Revenue (see above § 2) =	1820 €
Added value =	525 €

Those figures prove that the activity of rock crushing is valuable and deserves to be further investigated in order to make it more profitable as well as less difficult and less dangerous for the women involved .

This is why the process need to be mechanised

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4) Feasibility of a crushing machine

The CruschMFS is a small professional crusher: **axial shaft** made from improved steel mounted on ball bearings, waterproof, with spherical contacts, claws of manganese steel, shutter of tempered steel

This crusher is a double wheel type and can be worked by 2 or 3 individuals. The machine production can reach 16 tonnes per 8 hours with two teams of 20 workers : 2 for the rock extraction, 2 for delivering the stone at the machine, 3 work the machine, 3 take away the crushed stone to the delivery point

Rather than using people, the machine can also be powered by a diesel or a gasoline engine.

Number of women working per day / 1 machine						
	time	extraction	supply	powering	delivering	output (tons)
Standard day	8 hours	4	4	6	6	16 tonnes
Shift work						
Shift a 7am-11am	4 hours	2	2	3	3	6 tonnes
Shift b 11am -3pm	4 hours	2	2	3	3	6 tonnes
Shift c 3pm-7pm	4 hours	2	2	3	3	6 tonnes
Shift d 7pm-11pm	4 hours	2	2	3	3	6 tonnes
Total 7am-11pm	16 hours	8	8	12	12	24 tonnes

The standard worked day above is as proposed by the constructor of the machine. But running the machine from 7 am to 11pm with teams of 10 people for a 4 hours day would make possible to employ 40 people. So to employ 90 people 2 machines would be needed

Profit and loss (12 months)				
Number of machine	0	1	2	
Output				
Granulate selling price				
Raw material purchase price				
INCOME				
Revenue		237 600	475 200	
TOTAL INCOME		237 600	475 200	
EXPENSES				
Purchase raw material		13 056	26 112	
Tools		1 000	1 500	
Maintenance		2 400	4 800	
Salaries		186 498	382 100	
Depreciation		2 200	4 400	
Miscellaneous		2 250	4 500	
TOTAL EXPENSES		207 404	423 412	
NET INCOME		30 196	51 788	
%		13	11	

Cash forecast				
Year	n	n+1	n+2	
Investment	-11 000			
Grant	5 000			
Micro credit	6 000			
Micro credit refund		-6 000	0	
Net income		30 200	30 200	
Total Cash	0	24 200	30 200	

5) Benefits and recommendations

The new work organisation necessitated by the purchase of the machine would allow many social improvements :

- a) prohibition of work for children younger than 16, according the Benin's commitment to the WHO (World Health Organisation)
- b) establishment of a small cooperative association " Groupement des femmes de Cobyly" with an appropriate governance. The association will be registered as contractor of micro credit and will be able receive grant of Banque Populaire; At the present time the women of Cobyly are not really organised and cannot manage their collective job
- c) organisation of work teams, each of them supervised by a woman.
- d) each ethnic group represented as founding member of the cooperative
- e) general reduction of working time: 5 days a week, 10 ½ months a year
- f) diminution of the difficulty and fatiguing factor of the work tiredness and consequently more dedication to the children
- g) reduction of injuries of manual crushing; assuming that the ergonomic and the safety.... of the machine is assured, and that operative instructions will be established to ensure an optimal safety for the operators which will be adhered to and asked to respect strictly.
- h) prevention of silicosis by wearing appropriate non woven masks during operation
- i) increase of wages due to bigger output and better revenue

6) Schedule for implementation

ACCEPTANCE of a grant "Trophée Banque Populaire"

- 1) IF YES
 - week 4 order the machine
 - week 6 to 9 set up the cooperative
 - supply the accessory tools
 - week 8 to 10 delivery of the machine
 - organisation of the working teams
 - teaching and training
 - week 11 start of production
- 3) IF NO grant
 - week 3 search for new sponsors
 - week 9 stop the project or resume it with the with the new sponsor

7) Conclusion

Organisation and follow up of the development of the cooperative, is key of success as well as the willingness of the women of Cobly to take fully in charge the program

A relatively small financial investment (ca 11000€ for two machines) will mean a big human investment that will insure the cooperative's autonomy and efficient functioning. 90 women will be able to support their families and contribute to the education of their children.

Apart from the success of 90 workers, all the local African community will also benefit from the project

**How can one not to be convinced by and enthusiastic for
such an innovative and benevolent project !**