

Effect of Community Contracting on Decreasing Construction Cost

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ABSTRACT

Construction Implementation based on traditional methods in remote areas may leads to high cost, tuff Topography as well as difficulty of access make the contractors avoiding works in such places, also the tiny investments of small projects in remote areas are not attractive to contractors, so the competition is very low or absent and the price accordingly is very high. Sometimes the projects cannot be implemented at all. This research discusses a new approach of implementation that can replaced the traditional one and leads to reduction of cost, it improves the use of local resources including human resources as well.

Key words: Community, Construction, Cost, Projects.

1. INTRODUCTION

Constructional implementation of the projects carried out by many ways, in which the fund transfers from owners to contractors through several approaches called construction procurements. The approaches vary from simple ones, where the fund of the construction paid directly from the owner to the contractor, to complicated methods where many procurement process should be flowed up.

In simple methods, when owners are individuals, simple companies or organizations, the owner usually hands over the project directly to the contractor who gets payments according to the achievements percentage.

In complicated approaches, it is essential for both the contractor and the owner to follow up procurement procedures, these procedures differs from country to country and from organization to another but all of them aim to more transparency and low cost gaining.



2. THE RESEARCH METHODOLOGY

The research methodology has been employed into Two stages the first one was Literature Survey and the other one was Field Work.

2.1 Literature Survey

In this stage available literature, publications, advance researches, related papers and books have been reviewed.

2.2 Field work

In this part of the research the possible criteria for the selecting suitable construction techniques have been identified by using two ways:

a - Field survey for the most Existing cases in deferent places were studied. Those cases reflected real experiments of community contracting implementation.

b-Field questionnaire

In order to have knowledge and experience of those who work in the field of project construction and who applied community contracting, it was logical for the researcher to distribute inquiries to many workers in this field of implementation:

Inquiries with decision makers, Inquires with technicians and Beneficiaries inquiring

3-STATISTICAL DATA AND INQUIRES ANALYSIS

3.1 preface

As only one authority is working on community contracting in the area which this research is carried out, It is Social Fund for Development (SFD), so the inquires and samples of inquiries have been restricted in the officials of this organizations and beneficiaries of its sub-projects, especially those who are interested in community contracting implementation. 37 of distributed forms of inquiries could be obtained and analyzed, interviews have been made as well.

3.2 inquires main axes

Data of inquires concentrated on many issues, which reflect main characteristics of community contracting method, and its relation to cost and quality, these axes are:

3.2.1 Personal information axis;

This axis focused on experience, level of education, responsibilities and turns of inquired persons.

3.2.2 Implementation data axis

Data axis includes numbers of sub-axis, which contained questions about;

Cost effecting factors, Effective factors of quality of works, Differences, between normal methods and community contracting, Causes of long period of implementations in community contracting, Cost link to implementation period. Features of success in community contracting. Features of failure and Justifications of using community contracting.

3.3 Analysis of inquiries results

As it is mentioned earlier 37 of inquires forms have been obtained and analyzed. beneath each analysis result, the researcher quoted notes reflect his thoughts and suggestions on the issue being discussed and analyzed.

3.3.1 Personal data analysis

Table (3.1) shows detailed description of main characteristics of inquired sample, it clarifies the educational degree, career, responsibilities, and years of experience of sample's individuals.

Table (3.1). Description of sample's individuals

serial	qualification	career	responsibility	Years of experience
1	Bachelor degree	Civil engineer	Supervisor	Less than 5 years
2	Bachelor degree	Civil engineer	Supervisor	From 5-10 years
3	Bachelor degree	Architects	Procurement officer	More than 15 years
4	Diploma	Technician	Trainer and social P.O.	More than 15 years
5	Bachelor degree	Civil engineer	Project officer P.O	Less than 5 years
6	Bachelor degree	Engineer	P.O.	from 5-10 years
7	Bachelor degree	Engineer	P.O.	Less than 5 year
8	Bachelor degree	Civil engineer	Supervisor	Less than 5 years
9		Technician	Site supervisor	Form 10-15 years
10	Bachelor degree	Civil engineer	Supervisor	More than 15 years
11	Bachelor degree	Civil engineer		From 5-10 years
12	Bachelor degree	Civil engineer	P.O.	More than 15 years
13	Bachelor degree		P.O.	Less than 5 years
14		Technician		
15	Bachelor degree	Civil engineer	Supervisor	More than 15 years
16	Bachelor degree	Engineer	P.O	From 5-10 years
17	Bachelor degree	Engineer	P.O	More than 15 years
18	Bachelor degree		P.O	From 5-10 years
19	Bachelor degree	Civil engineer	P.O	From 10-15 years
20	Bachelor degree	Civil engineer	P.O	From 5-10 years
21	Bachelor degree	Civil engineer	P.O	From 5-10 years
22	Bachelor degree		P.O	From 10-15 years
23	Bachelor degree	Civil engineer	P.O	Less than 5 years
24			Project committee chairman	More than 15 years
25	Bachelor degree	Engineer	Supervisor	From 5-10 years
26	Bachelor degree		Trainer and facilitator	Less than 5 years
27	Bachelor degree	Engineer	Supervisor	Less than 5 years
28	Bachelor degree	Engineer	Supervisor	From 5-10 years
29	Bachelor degree	Accountant	Accountant auditor	From 5-10 years
30	Bachelor degree	Engineer	P.O	From 5-10 years
31	Bachelor degree	Engineer	Supervisor	From 10-15 years
32	Bachelor degree	Civil engineer	Supervisor	Less than 5 years
33	Bachelor degree	Engineer	Supervisor	Less than 5 years
34		Technician	Site supervisor	Less than 5 years
35	Bachelor degree	Engineer	Supervisor	Less than 5 years
36	Bachelor degree		P.O	From 5 -10 years
37	Bachelor degree	Engineer	Supervisor	From 5 – 10 years

Analysis of the data in table(3.1);

a – Percentages of careers were; Chart (3-1) shows these percentages and values

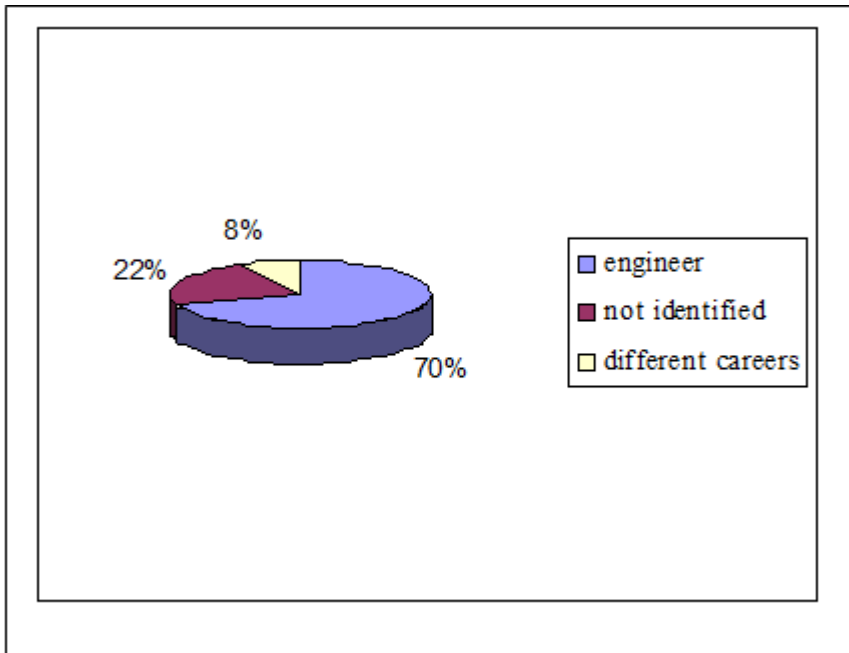


Chart (3-1) careers of sample individuals

b – Link of sample’s individuals to their responsibilities

The relation of sample’s individuals to their duties represents in Chart (3-2)

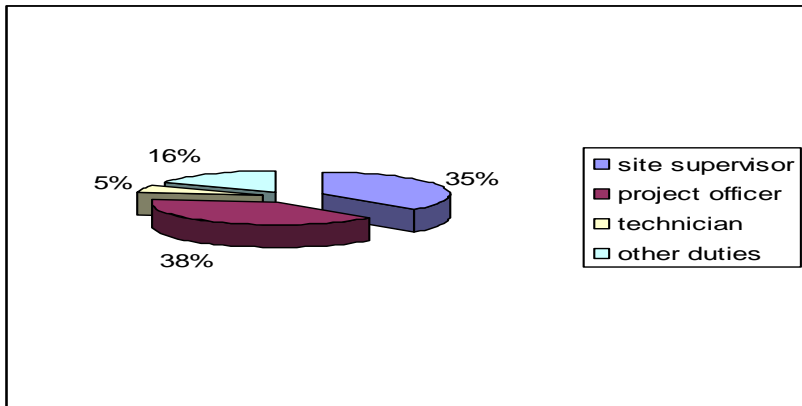


Chart (3-2) Relation of to their responsibilities

c – Experiences of sample’s individuals

Analysis of personal data of the sample Clearfield that most of the sample has engineering careers and that is normal because implementing of civil works need such careers. In related to years of experience, it is noticeable that high percentage is of those who have experience range of 5 to 10 years, in addition to 19% of whose their experience exceeded 15 years, these percentages give heavy weight to the responses and opinions of sample’s individuals .Chart (3-3) shows cumulated experiences of sample’s individuals

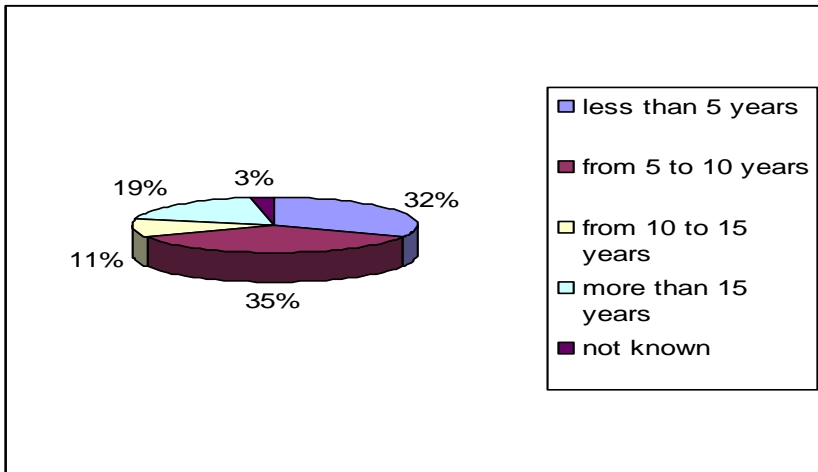


Chart (3-3) Years of experience of sample’s individuals

3-4-2 Analysis of data related to implementation

a – preference of implementation methods; in analysis of the question what is better, community contracting or normal contracting? And what are the reasons? The answers were illustrated in chart (3-4),

The higher percentage 46% indicates to preference of community contracting, moreover the majority under this percentage refer the reasons to low cost, high quality of implementation, and providing employments for local people. While those of the next percentage, 43% who prefer the normal methods of implementations, refer the reasons to reduction of work problems, easy supervision, and the whole responsibility is thrown on the shoulders of the contractor.

This result confirmed the idea that community contracting achieves low cost and high quality

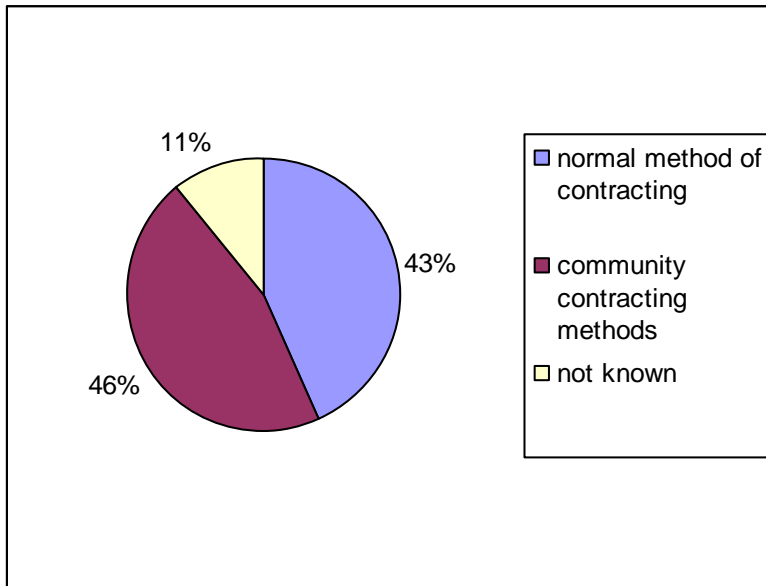


Chart (3-4) preference of implementation methods

b – Advantages of community contracting;

Table (3-2) frequent choices of community contracting advantages

Choice	Low cost	Good quality	Short period of implementation	More temp. employments	Better usage of resources
Frequent answers	29	23	4	34	31

notes : In refer to the data in the table; (3-2) advantages can be sorted in descendant form as the following;

- Providing temporary employments to the local people.
- Better usage of local resources.
- low cost of construction.
- High quality of constructed works.

But majority of the sample’s individuals agreed on the long period of implementation in community contracting.

c – Reasons of long implementation period

In response of a question tackles causes of long period of implementation in community contracting, frequent of the answers were as in table (3-3) It is clear that the importance three factor effects the period of implementation come in front, they are;

- problems within committee members,

- beneficiaries are not obliged to contribute, and
- Unavailability of financial and technical capabilities of local contractors.

Table (3-3) frequency of answers of reasons prolong implementation

serial	Reasons effectiveness	Average of frequent answers					w.t	importance Degree
		V. high	high	medium	weak	neglected		
1	Bureaucracy of procedures applied by donor	1	6	9	8	7	6.81	8
2	Problems within committee members	8	20	7	1	0	13.03	1
3	Non-transparent disbursements	3	7	14	7	3	9.03	7
4	Discrepancy of benefits between committee members and beneficiaries	4	9	15	6	0	10/16	4
5	Beneficiaries disobliged to provide contribution	15	12	6	1	1	12.86	2
6	Weak supervision by consultant	7	9	7	7	2	9.57	6
7	Weakness of monitoring by P.O	5	1	7	13	8	6.97	9
8	Shortage or non-availability of skilled and non-skilled labors	6	6	16	1	1	10.16	4
9	Weakness of training for project committee	5	8	11	9	1	9.18	5
10	Shortage of financial and technical capabilities of local people	7	13	11	3	0	11.41	3

d – impact of long implementation period on cost

In response to a question inquiries of impact of implementation period on both type of implementation, the frequent answers of sample's individuals where as in table (3-4),

Table (3-4) impact of implementation period on cost

s	Implementation methods	Frequent answers					weight	rank
		Very high	high	medium	weak	Rare		
1	Community contracting	4	15	10	6	1	8.92	1
2	Non-community contracting	3	13	9	7	1	7.85	2

Note: Table(3-4), shows that the effect of increasing period of implementation on cost, it is higher in community contracting than in normal one, the researcher refers cause to cost in community contracting is belonging to donor, so it appears, especially running cost, while in normal way the cost is belonging to contractor, where it is hidden and not sensible. Despite this the cost remains less comparing with non-community contracting.

e - Vitals of successful community contracting and their effects on cost

In response for inquiries of vitals of community contracting implementation and their effects on cost of construction the answers came as in table (3-5)

Table (3-5) vitals of success and their effect on cost of construction

vitals of success	Degree of indicator					Impact on cost				
	high	med	weak	weight	rank	high	med	weak	weight	rank
availability of skilled and non skilled labors	25	9	0	22.35	4	20	12	2	20.29	5
project reflects real priority	25	8	1	22.06	5	22	8	4	20.29	5
project committee is effective and elected in democratic way	29	5	0	23.53	1	17	10	5	17.65	9
non elite captured persons and community Cinery	24	8	1	21.32	8	29	11	3	26.62	1
project committee is trusted	28	4	2	22.65	3	24	6	4	20.88	4
community participated in planning and designing	13	14	6	16.62	14	12	15	6	16.32	11
availability of resources in the area	27	6	1	22.65	3	29	3	1	22.79	2
easy access to and out of the area	25	6	3	21.47	7	26	6	2	22.06	3
consultant is very free for project	28	5	0	22.79	2	20	9	4	19.26	6
intensive monitoring and supervising	27	4	1	21.76	6	19	9	4	18.53	8
easy procurement and procedures	22	10	0	20.59	10	11	17	2	15.88	12
accurate of designs	21	12	0	20.74	9	19	10	2	18.68	7
training and aware committee	21	9	3	19.85	11	12	17	4	16.91	10

Notes

From statistical data quoted in the table (3-5) the weight of indicators shows that five key factors influence success of community contracting, they can be arranged according to their ranks as follows;

- Project committee is effective and elected in democratic way.
- Project's consultant is fully engaged in project work.
- Project committee is highly trusted.
- Availability of construction resources, skilled and non-skilled labors.
- Project reflects real priority to community.

in regarding to impact on cost, the factors takes different order and importance, the five key factors influence the cost can be take the following order;

- Synergy of community and absence of elite captured people.
- Availability of resources in the area of the project.
- Easy access.
- Project committee is highly trusted.
- Availability of skilled and non-skilled labors.

It is noticeable that factors affect the success of project are not usually as same as those effect cost, also those have effect on both are not take the same rank and importance. However all mentioned factors effect cost somewhat, but more focusing should be given for

those affecting both in the same degree, because such factors consist leading lines for decision makers to interfere or do not.

f –factors influencing the cost in both type of contracting

In response to a question about factors affecting the cost in all types of implementation, the frequent replies are shown in table (3-6).

Table (3-6) statistical analysis of influential factors on cost

Factors affecting cost	Normal contracting					Community contracting				
	25	15	5			25	15	5		
	high	medium	weak	weight	rank	high	medium	weak	weight	rank
area is remote	26	5	3	21.76	2	14	13	4	16.62	6
toughness of area	29	3	1	22.79	1	18	11	2	18.38	3
extra added works	17	15	2	19.41	5	11	16	4	15.74	7
poor planning	21	12	1	20.88	3	19	10	2	18.68	2
less communicate with stakeholders	10	16	8	15.59	10	9	15	6	14.12	10
lowest price is awarded	17	13	4	18.82	7	8	15	8	13.68	11
contractors have no skills	20	11	3	20	4	14	13	4	16.62	6
faults of implementations	18	13	3	19.41	5	15	8	7	15.59	8
extraordinary orders due to editing works	17	13	2	18.53	8	10	14	6	14.41	9
shortage of materials needed in implementation	18	12	2	18.82	7	21	10	0	19.85	1
variation of currency rate	20	14	0	20.88	3	14	14	3	16.91	5
delay of implementation	16	12	6	17.94	9	20	6	5	18.09	4

Notes:

It is clear that the most important factors influence the cost in normal contracting are toughness and remoteness of the area, next comes poor of planning, variation of currency, and increasing of material price, then poor skilled contractors, faults of implementation, and extraordinary orders. While in community contracting the most influential factors are unavailability of local resources and poor planning, the remoteness and toughness of the area come at the end. This situation indicates that remoteness and toughness of the area play main role in normal implementation methods, while they are of less or neglected effectiveness in community contracting. So the researcher sees statistics quoted in the table emphases the fact that community contracting is most suitable for remote and difficult areas.

4- Descriptive analysis for open questions of inquiry

There were open questions on the inquiries to reflect free thoughts, perceptions, and hidden experiences of sample's individuals. The questions focused on two axes the first one dealt with the failures characters and the second one dealt with justifications of implementing community contracting.

The most common answers in regarding to indicators of failure were;

Shortage or absence of local resources, Shortage or unavailability of skilled and non-skilled labors in community, Toughness of the area, Project committee has no credibility and transparency, Ineffective monitoring and supervising, Community is non-homogenized and fractioned, Project reflects no priority to the community, Local contractors have no skills, Beneficiaries are not aware to the benefit of the project, Project committee badly elected, and Training provided to the committee is not enough.

Regarding justifications of community contracting usage, frequent answers of sample's individuals gave the following reasons;

- Cost reduction.
- High quality of works.
- Providing employment chances to the local people.
- Building capacity of local people.
- Better usage of local resources.
- Simple procurement in comparing with normal methods.
- Suitable for remote and non-accessible areas.
- Empowering ownership.
- Building and improving skills of local contractors.

CONCLUSIONS AND RECOMMENDATIONS

8-1 conclusions

Based on literatures, inquires results, statistical analysis, and interviews. The researcher concludes the following;

1. Applying community contracting still limited and only SFD uses it for the moment.
2. It is used for implementing infrastructure projects in rural area, especially water harvesting projects, access rural roads, health units, and to somewhat education projects.
3. Community contracting implementation is suitable for remote and tough areas and clearly reduces the implementation capital cost.
4. Availability of local resources and skilled and non-skilled labors play main elements in reducing the cost.
5. Community contracting improves capacity building of local people.
6. Community contracting provides employment chances for local people.
7. It improves the skills of local contractors and local craftsmen.
8. Democratic election of project committee and transparency and credibility of its members are very important elements to reduce cost.
9. Cinergy and homogeneity of society is a good indicator of success and leads to low cost.
10. if the project reflects real priority to the local community, local people participate and contribute effectively and the cost is reduced.
11. Intensive supervision and monitoring keep the period of implementation and expenses limited, so the cost of implantation stays low.
12. High illiteracy in the society obstructs community contracting implementation, due to difficulties in forming effective committee and absence of skilled labors.
13. Low level of financial capacity of local contractors makes some civil works difficult to be locally contracted and then raise the cost somewhat.

14. Cost of community contracting is very low in compare with normal methods in small infrastructure services specially those depend on local materials such as rocks and mud as in water harvesting projects.
15. More training to project committee members supports reducing construction cost.
16. Improving procurement process and easing process of fund flows into the bank account will lessen the cost

8 – 2 Recommendations

Going through what mentioned in previous sections and depending on analysis of inquiries and sample studies. The researcher recommends the following;

1. Community contracting implementation has low capital cost in compare with implementation in other methods, especially in remote and tough areas,. So it is recommended applying community contracting in such areas in general.
2. Community contracting is successfully applied in rural communities, which have intensive skilled and non-skilled labors, so it is recommended to be implemented whenever intensive labors are available. Because it achieves low cost and high quality.
3. As project committee is responsible of implementing community contracting, it should be well trained, well and freely elected, and should be provided with simple and accurate procurement procedures in order to control the cost and keep it low.
4. it is recommended more simple accounting procedures to prevent corruption, fund seepage and then increase cost efficiency.
5. Intensive training to the committee members should be given to improve their skills in procurement and monitoring, this will lead to less cost and high qualitative works.
6. Easing the process of transferring and disbursing money in way that keeps the principles of accounting and shorten the period.
7. Detailed guidance for community contracting should be issued in order to ease the performance of community contracting, facilitate the work and reduce the problems attached to misbehavior and misunderstanding, it is expected that will lead to more effective cost.
8. To segment biddings into small parts is essential to create more competition among local contractors and accordingly the cost decreases.
9. . The committee must have specific place as an office where it can store and manage fund easily. This will lessen the expenses and then reduce the cost.

8-3 Researches and future studies

The researcher expects more studies and researches that can complete this thesis such as;

- Ability to conduct community contracting in urban areas.
- Adjusting and formatting community contracting method to be applicable for big and complicated projects.
- Studing each factor of community contracting separately and in detailed way.

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التعاقدات المجتمعية وأثرها في تقليل كلف المشاريع الإنشائية

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ملخص

هذا البحث يناقش فكرة إيجاد طريقة جديدة لتنفيذ المشاريع الخدمية وعلى وجه الخصوص في المناطق البعيدة والنائية والتي يصعب تنفيذ المشاريع فيها بالطرق العادية. لقد جرى إتباع منهجية علمية للبحث تضمنت مرحلتين أساسيتين ، مرحلة الدراسة النظرية تم فيها الاطلاع على الدراسات والبحوث السابقة والمتعلقة بموضوع هذا البحث ، ومرحلة الدراسة الميدانية التي اشتملت على دراسة حالات ونماذج من المشاريع تم تنفيذها بهذه الطريقة الجديدة واستخلاص الدروس المستفادة منها كما اشتملت أيضا على جمع البيانات عن طريق المقابلات الشخصية وإجراء الاستبيانات التحريرية للعاملين في هذا المجال وكذا لكل من صناع القرار والمستفيدين من هذه المشاريع. إن تحليل البيانات ونتائج دراسة الحالات والمقابلات والاستطلاعات قد مكنت الباحث في نهاية هذا البحث من وضع التوصيات والمقترحات التي تمكن من الاستفادة من هذه الطريقة وتحسينها.

كلمات مفتاحية: المجتمع ، البناء ، التكلفة ، المشاريع.