

Empowerment and Infrastructure Development Process in Development Assistance Field

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In the development assistance field, the concept of empowerment has been also shed light on by the donors. There are a number of preceding research products addressing empowerment in terms of emerging theories including factors and measuring methods in the sector of health, education, governance and gender etc. 37% of the total assistance of the World Bank group to low- and middle-income countries and the private sector is counted for infrastructure sector. The limited studies and research, however, address the empowerment and infrastructure development/construction. This paper discusses the relation between infrastructure and empowerment by literature review and infrastructure project case review, especially focusing on the process of infrastructure development/construction. A conceptual model for emerging empowerment by infrastructure development/construction projects (here in after called the infrastructure project) is proposed including factors and mechanism leading to empowerment and discussion of how to measure empowerment in the context of infrastructure development.

Key Words: social development, empowerment, model, infrastructure, development assistance

1. INTRODUCTION

Social development has increased its priority in the donor society since 1990. Succeeding to the World Summit for Social Development, Copenhagen, Denmark, 6-12 March 1995” (United Nations), the United Nations Special Session of the General Assembly was held in Geneva for following up the Copenhagen Summit and for drawing up the guidelines for social development assistance in June, 2000. The World Bank published New Path to Social Development¹⁾ for the special session. From the concept that social development was a base to promote economic development, social development position has been sifted equivalent to the position of economic development.

Social development does not necessarily have common and established definitions. Importance of empowerment, however, is recognized as both of means and ends of social development. The donors have shed light on empowerment and increased assistances including empowerment components. As a typical case, in CDD (community driven development) scheme, a multi-sector project scheme,

sub-projects are implemented by the huge funds of the World Bank. There are also a number of projects in the sector of education, health/medical, governance, business, gender, agriculture and infrastructure (e.g. water/sanitation and transport) with empowerment components.

Even though huge funds are used for empowerment related projects, the evaluations of the projects are still on the way in terms of the number of the projects and method of evaluation. The donors at present make effort to evaluate the projects in terms of relations between intervention (input) and output/outcome or impact which is one of the five items of DAC evaluation criteria. Several issues, however, still remain. They are: whether targeted beneficiaries are factually empowered or disempowered, what factors of the intervention cause empowerment or disempowerment, how the empowerment emerges by the factors, what context leads to bringing about empowerment and so on. Furthermore, how to measure empowerment gives rise to a vigorous argument among sectors and researchers.

In education, health/medical sector, gender related

sector and business sector; there is a certain amount of research in both developing countries and other countries. In infrastructure sector, however, there are less research, especially in terms of infrastructure development/construction process and empowerment in also the both countries. Because infrastructure development/construction requires huge amount of fund, this issue cannot be overlooked.

From this background, this paper discusses the relation between infrastructure development/ construction and empowerment in the context of development assistance. This paper is structured by six sections. The next section reviews previous research on empowerment: history, sector wide situation, infrastructure sector situation. Section 3 introduces factual the infrastructure project with empowerment components. Section 4 presents an empowerment model referring to the previous research. The new model developed by the authors is also introduced. In Section 5, infrastructure perspectives are applied to the proposed model. Section 6 with conclusion, future tasks are explained.

2. OVERVIEW OF EMPOWERMENT

(1) History of Empowerment

The origin of empowerment came from the meaning of “em” plus “power”. “Em (en)” means “put power into inside and “power” means “control, influence, ability, energy, right and authority etc. At the beginning of mid-17th century, as a legal term, the word of empowerment was used to invest /delegate authority (power). In modern time, after World War II, the field of social change/ transformation such as civil rights movement and counseling and women’s movement with a concept of “can do or permit”, has paid a remarkable attention on empowerment. For example, it is widely acknowledge that the Brazilian educational theorist Paolo Freire, in the 1970s, began to use an empowerment concept to advocate for the liberation of the oppressed through education, especially literacy education²⁾

In development assistance field, in 1980ies, World Bank started to incorporate empowerment concept into its functional role as a key factor to address poverty reduction while the term of social capital has been used since 1993. In 1990ies, other donors, such as JICA and Dfid, also came to have an assistance scheme with empowerment components. As a one of the scheme, Community Empowerment Program (CEP) started. Their targets were the poor and vulnerable in rural areas at the begging and later expanded to the people also in urban areas. Then, CDD

scheme has emerged as one of the fastest and notable growing investments by NGOs in addition to the donors including multilateral aid agencies.

(2) Empowerment and sectors/field

In development projects targeting to both of developing countries and the other countries, several sectors introduce empowerment concept and implementation projects containing empowerment components. First, sector by sector, project cases are shown in Table 1. Sector standalone projects are implemented in a variety of sectors.

Table 1 Sector situation related to empowerment (sample cases)

Field/ Sector	Development assistance	Other than Development assistance	Remarks
Education	Community based school management Non-formal education Literacy education	Participatory study and student empowerment	Process focused
Medical/ health	HIV patient empowerment Disable people empowerment Health promotion Nutrition improve	HIV patient empowerment Disable people empowerment Health promotion Nutrition improve	Process focused
Governance	Solidarity and social fund Participatory budgeting Staff capacity development	Neighborhood renewal(U.K.)	Process focused
Business/ industry	Microfinance scheme Employee capacity development	Rejuvenation of organization Customer satisfaction, Productivity increase Employee Capacity development	Focusing on leadership, capacity of staff, authority delegation
Gender	Many Actions against violence is notable.	Many Actions against violence is notable.	Education, Medical/Health, Business related
Infra-structure	Less exist focusing on the characteristics of infrastructure	Less exist, e.g. John Turner: housing	Constructed facilities affected empowerment, Construction process affected empowerment Both are still unclear on empowerment and causality

Empowerment has also been a central tenet of the feminist movement, in the gender related field, many organizations still use the concept of empowerment. As listed in Table 1, in gender sector, factual activities are

implemented as other sector sub-projects.

Second, it can be said that major cases are found in the multi-sector project scheme. The multi-sector project is composed of several sector sub projects including infrastructure components, e.g. school/ hospital/clinic building, road and bridge, water and sanitation facilities and irrigation facilities. Community development projects are typical multi-sector project. At present, scheme of CDD is most popular and used in the development assistance field led by World Bank.

(3) Definition and typology

The definition varies depending on the sectors, organizations and researchers even in the same sectors. For instance, an OPHI working paper listed up 32 definitions of empowerment³⁾. Zimmerman indicated the risk to generalize the concept of empowerment because the generalization may lead to make attempts to achieve it formulaic or prescription-like, contradicting the intended concept of empowerment⁴⁾.

In the development assistance field, World Bank definition is widely known. Empowerment is defined as "the expansion of assets and capabilities of poor people to participate in, negotiate with, influence, control, and hold accountable institutions that affect their lives"⁵⁾. Another definition of the World Bank is that empowerment is the process of increasing the assets and capabilities of individuals or groups to make purposive choices and to transform those choices into desired actions and outcomes (Poverty Net, World Bank). GSDRC's definition is interested in terms of containing the concept of autonomy, social change and self. GSDRC defines that empowerment is the process of developing a sense of

autonomy and self-confidence, and acting individually and collectively to change social relationships, the institution and discourse that exclude poor people keep them in poverty⁶⁾.

As mentioned, there is no single, general and common definition, on the other hand, common aspects are found among these definitions. These findings are represented by the terms: social change to desired direction, endogenous and intrinsic (for instance, self-efficacy, self-control, self-esteem, confidence), multi-dimensional social process, power relations or power share, collective actions, participation, capacity/capability to choose and take actions and so on.

Next, the review of the category of empowerment makes sense to construct a conceptual model, establish a theory of emerging empowerment, development of measuring method and measuring indicators. Table 2 introduces an empowerment classification according to level, domain and dimension. Depending on the researchers, those three term usages show some difference. Furthermore, for instance, Spreitzer uses the term of dimension for different concept. It can be said that she used the term of dimension as factors necessary to attain empowerment. She, reviewing literatures on psychology, sociology, social work and education, reorganized and refined four dimensions related to psychological empowerment: Meaning, Competence, Self-determination and Impact.^{11),12)} She also indicated that those categories of empowerment are interrelated and not independent. Rather, she stressed that those categories of empowerment may have the synergy effect. From this implication, there is a need of further research for reciprocity.

Table 2 Empowerment Classification

Category							Researcher/ Organization
1.Level	individual	Family	Community	Polity		Polity	GSDRC ⁶⁾
Level	Micro		Intermediate		Macro		Alsop et al ⁷⁾
Level	Personal			Relational		Collective	Kabeer ⁸⁾
2.Domain		Market	Community		State		GSDRC ⁶⁾
.Domain		Market	Community		State		Alsop ⁷⁾
.Domain	Household	Market	Community		State		Ibrahim et al. ³⁾
3.Dimension	Access to resources	agency	Outcomes				Kabeer ⁸⁾
Capacity to exercise strategic life choice							
Dimension		Social		Legal	Economical	Political	CIDA(1997)
Dimension	Psychological	Social	Cultural	Organizational	Economical	political	Oakley ⁹⁾
Dimension		Social and Human	Cultural		Economical	Political	Luttrel et al. ¹⁰⁾

3. INFRASTRUCTURE PROJECT CASES RELATED TO EMPOWERMENT

(1) Present situation of Infrastructure sector in development assistance field

Infrastructure development is critical to delivering growth, reducing poverty, and creating jobs. Including transport(15%), water/sanitation(8%), energy/mining (13%) and information and communication technology: ITC(1%), infrastructure support accounts for 37% of total fiscal 2013 lending to client countries, as the WB's largest business line¹³. There are cases that education sector contains facility construction such as school building and hospital/clinic facility construction. Those projects are counted as education and health/medical sector. Accordingly the percentage of infrastructure lending may be more than this figure,

JICA also weight totally over 54% of fund to infrastructure sector such as economic infrastructure and services (37.88%) and social infrastructure and services 17.33% in 2008 as bilateral aid¹⁴. In the peacebuilding sector, nearly 70 % of fund was used for infrastructure reconstruction to restore and maintain peace situation.

In standalone infrastructure projects, usually the main project object is to construct infrastructure facilities. Social development objective inclusion is not still mainstreamed especially in large size projects. From this background, as far as the authors concerned, only less research and evaluation regarding the relation between infrastructure development /construction process and empowerment are found.

(2)Community Development and Infrastructure

In light of infrastructure and empowerment, project schemes related to community development have empowerment portion as a project objective. These scheme are, in most cases, deal with multi- sector projects. In the schemes, there are a lot of small scale infrastructure sub projects with other sector sub projects such as education, medical, agricultural or income generation sub projects.

The most typical community development scheme is, as noted, community driven development scheme (CDD), which adopts participatory approach. CDD continued investment driven mostly by an expectation from donor agencies and developing countries in terms of bottom-up and demand-driven method for poverty reduction and self-development of the community. Empowerment of a targeted community and its residents is a main objective. Although bilateral donors such as Dfid and JICA have provided fund to promote CDD, the biggest funder is the World Bank with its funding scale and the number of the projects. The World Bank supported approximately 190 lending projects amounting to \$9.3 billion (CDD portion was \$7.2 billion) in 2000–2005¹⁵. Philippines Afghanistan, Pakistan and Indonesia are notable beneficiaries of CDD scheme.

(3)Evaluation of empowerment community project

Donors especially World Bank have preceded evaluation of CDD whether the interventions by CDD attain project objectives including empowerment of the target community or target people etc. The World Bank started impact evaluation. The term of the impact is different from DAC evaluation item. The impact evaluation refers to the evaluation method to avoid selection bias. Several problems are raised from even inside of the bank, OED (operation and evaluation department), in terms of insufficient rigorousness of RCT (randomized controlled trial) method and baseline data¹⁶.

In addition, the World Bank evaluation does not particularly focus on the infrastructure aspect and empowerment. The evaluation still takes the CDD sub project as a whole. It does not assess the infrastructure portion separately. Although some empowerment related data are found in a World Bank evaluation report¹⁷ of a CDD project (for instance collective action and inclusion), the evaluation does not link to the empowerment related data to infrastructure portion. As a matter of fact of course, so far no evaluation has been found in the topic of empowerment emerging and infrastructure development/construction process.

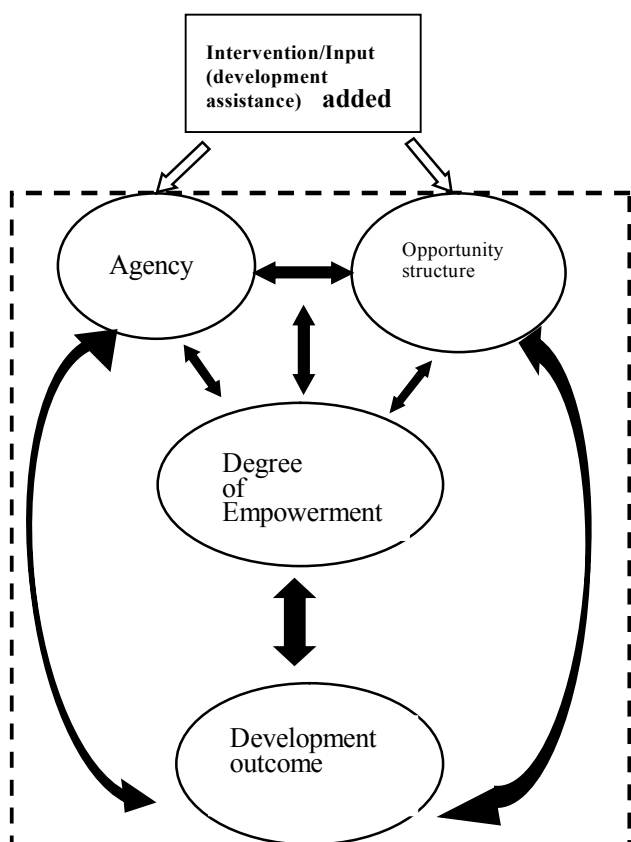
4. EMPOWERMENT EMERGING MODEL FOR INFRASTRUCTURE PROJECT PROCESS

(1)Framework of Emerging Empowerment

The antecedent research proposed empowerment emerging frameworks and Alsop et al.⁷, by reviewing the research of Bennett¹⁸, Kabeer¹⁹ and Krishna²⁰, integrated and organized the framework. Regardless of sectors, levels, domains and dimensions (for instance social, economic and political), two common factors were identified: agency and opportunity structure. Agency has several definitions and Alsop et.al⁷ defined agency as an actor's ability to make meaningful choices, that is, the actor can envisage options and make choice. This concept may be interpreted as capacity to choose. On the other hand, they defined opportunity structures as the formal and informal context within which actors operate. Opportunity structure may be interpreted a kind of social system and /or social environment surrounding the actors.

Alsop et.al⁷ illustrated this concept on Fig.1. They explained paths to emerging empowerment using also agency and opportunity structure. Explicitly it is shown that interaction between agency and opportunity structure leads to empowerment in addition to

agency alone and opportunity structure alone. They furthermore stressed direct interaction between development outcomes produced by empowerment and agency/opportunity structure. Their original model is



source: Modified from the conceptual framework by Alsop et.al¹⁾, the top rectangle part, intervention, is added to the original model.

Fig. 1 The relationship between outcomes and correlates of empowerment

the part of the larger rectangle by dotted line.

2) Developing and modifying the original model

First, in development assistance field, projects which contain empowerment components inevitably associate with intervention (input) from outsiders (donors or NGOs). The original model does not provide clearly the intervention portion. The authors added the intervention part to the original model to Fig 1.

Second, it is widely acknowledge that empowerment is a process and changes of agency and opportunity structure. Using this concept, the authors find necessity to include the concept of change agency and opportunity structure before and after of intervention (input) to the original model. The modified model is presented in Fig.2 showing this concept.

Furthermore, Fig.2 indicates the logic of emerging empowerment. That is, by some intervention (input),

initial agency of the actors and initial opportunity structure of the actors will be stimulated to increase and/or be improved. The area enlarged of the second level right and left rectangles represent expansion/improvement of agency and opportunity structure. It is referred from the original model that these two factors with their expansion have interaction. These differences between initial stage and expanded/improved stage will result in the bottom rectangle. In the bottom rectangle, changing of perception and taking actions by the actors occur also with interaction between them.

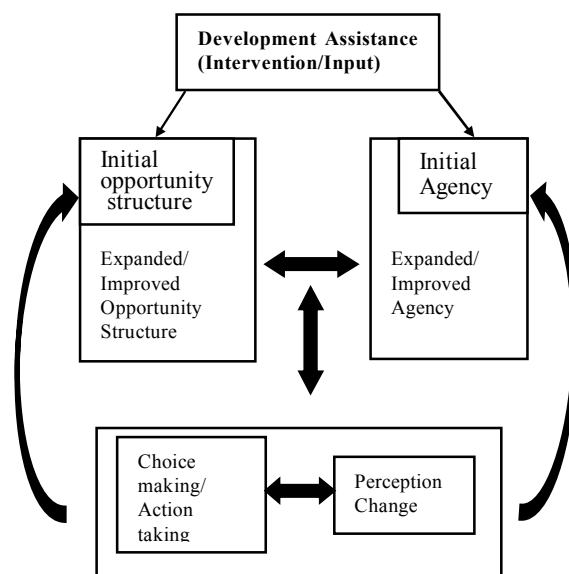


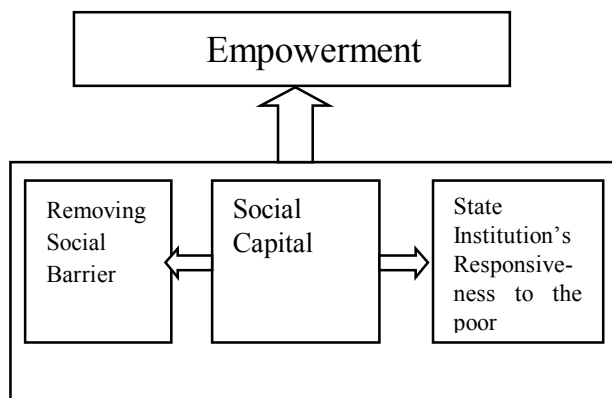
Fig. 2 Modified conceptual empowerment emerging model

The authors interpret the integration of the flow, change of the two factors and appearance of the bottom rectangle as emergency of empowerment. The flow represented by three thick straight arrows. The original model indicated three effects: agency alone, opportunity structure alone and interactions of agency/opportunity structure. The modified model stresses the idea that the interaction leads to emerging empowerment. The circulation effects represented by the curved thin left and right arrows possibly exist. There are, however, need more discussions in terms of the mechanism and influence related to this circulation to whole conceptual model. Furthermore, the two components in the bottom rectangle are considered observable. Accordingly, these two components imply the possibility of constructs of measuring empowerment.

3) Empowerment and social capital

The relation between social capital and empowerment draws argument. World Bank views social capital is a base of emerging empowerment. World

development report 2000/2001 listed three pillars to facilitate empowerment. Fig. 3 shows the Bank concept of social capital and empowerment referring to Grootaert discussion²¹⁾. Social capital influence to removing social barrier and State Institution's Responsiveness. The lower rectangle integrating those three pillars leads to empowerment. Grootaert also indicated that the empowerment sourcebook does not explicitly mention social capital but implicit in the strategies recommended leading to empowerment.



Source: developed by the authors referring to Grootaert discussions²¹⁾

Fig.3 Three pillars for emerging empowerment

From the social capital definitions, the authors raise another possibility for the relationship between empowerment and social capital. It is that empowerment can be partly interpreted as an expansion and or improve social capital. The most common aspects of social capital are considered trust, tie, discipline and network for leading to collective and cooperative actions. Social capital is static and empowerment is dynamic. Opportunity structure has common feature with social capital especially informal structure. From this idea, changes of social capital (expand and/or improve) before/ after and/or with/without of the intervention have a possibility to be interpreted as empowerment. It is, however, still unclear how this interpretation or concept influences the emerging model of empowerment and set of measurement indicators for empowerment.

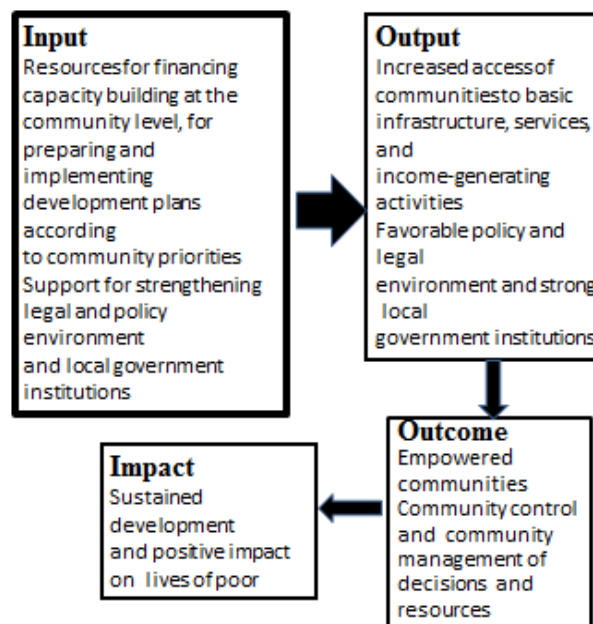
5. APPLICATION OF INFRASTRUCTURE PERSPECTIVE TO PROPOSED MODEL

This section discusses the application of the proposed conceptual model to infrastructure projects. First, it is identified what is the different characteristics of infrastructure projects compared with the other

sector projects. This is necessary for preceding discussion on setting of intervention component/factors and measurement indicators. Then intervention/input components are proposed specifying to infrastructure projects. Third appropriate empowerment indicators for measuring to validate infrastructure project are discussed.

1) Identifying infrastructure characteristics

There are several characteristics and idiosyncratic aspects in infrastructure sector compared with other sectors. Appendix A tries to show the comparison with subjective rating of low, medium and high. It should be highlighted that infrastructure sector has irreversibility, difficulty of move and modify after construction completion, need of more human power for planning and implementation, more visibility for progress, more number of stakeholder involvement and directly influence to daily life. Land is also indispensable. One more important consideration is that infrastructure as artifacts may have the biggest influence to regulate human actions as indicated by Winner²²⁾. Those aspects shall be discussed and examined in relation to set of intervention/input component and measurement indicators.



Source: World Bank ²³⁾

Fig.4 CDD Empowerment Flow

Fig. 4 demonstrates the flow from intervention/input to impact (DAC impact) referring to CDD scheme of the World Bank ²³⁾. This model does not address the infrastructure project alone although including. It rather addresses multi-sector projects with participatory approach. From the context of infrastructure sector, both of intervention/input factors and measuring indicators shall be considered as

adding and/or modifying the items in Fig.4.

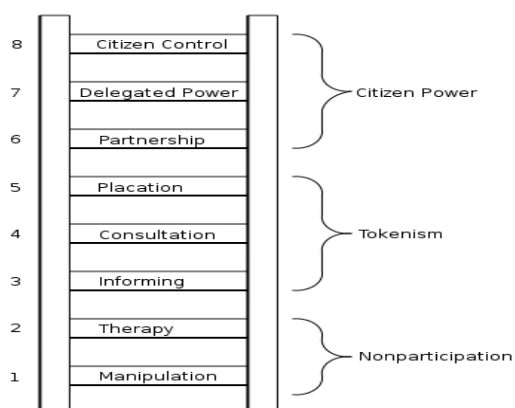
2) Intervention/input factors

In light of infrastructure projects, it is necessary to set more detailed intervention component focusing on the process. The authors propose the input components on Table 3 as break down intervention component of infrastructure projects.

Table 3 Intervention/input factor break down

First Level	Second level	Third Level
1.providing resource: fund for equipment, material, services	1.Grant or Loan With or without conditionality	Conditionality employment distribution, affirmative action for the vulnerables payment mode performance based or time based Payment individual base or group based Payment frequency
2.Providing opportunity of Participation Consensus building, Gathering Collective action, Providing link to governments Providing authority and responsibility Providing opportunity for construction works	2..Participation method in planning and implementation from 1)donor driven (a kind of manipulation), 2) informing 3) consultation 4) partnership 5) authority delegation 6) community control (community contract)	Load Sharing Employment only or community contribution in cash, in kind(material and/or laborer Accountability requirement
3.Providing technical assistance	3. Engineering, project management (financial, accounting, cost control, quality control, labor management, contract management etc.)	

First level intervention components are referred to the input in Fig 4 and the second level components are reorganized by the authors based on the previous research of Pretty²⁴⁾ and Arnstein et.al²⁵⁾. In Fig. 5, the concept of Arnstein on participation degree is illustrated. Pretty proposed the similar concept.



Source: Arnstein²⁵⁾

Fig. 5 Arnstein proposed participation ladder

The authors hypothesises that participation degree and construction scheme including contract type,

payment mode and job distribution will be a significant contributing factors to empowerment under some social situation (opportunity structure). Especially, there is voluminous research to support of this participation focus idea: Ibrahim et.al³⁾, Lord et al.²⁶⁾, Zimmerman²⁷⁾ and Perkins et al.²⁸⁾.

In development assistance field, it is usual to adopt participatory approach aiming at empowerment. World Bank evaluates CDD projects with viewpoint of participation and outcome/ impact^{23),29), 30)}. From the infrastructure sector specific aspects discussed above, the importance of participation and construction scheme is supported in terms of a number of stakeholder, irreversibility, progress visibility etc. In the third level, further detailed and infrastructure specific components are introduced with regard to construction implementing scheme.

3) Measurement empowerment issue

The donors' biggest interest is whether their development interventions lead to bring about empowerment and what factors of the intervention contribute. Gathering evidence to validate of the intervention is not easy because of measuring problems. The difficulty is due to broad definition of empowerment, multidimensionality such as level, domain and dimension, difference physical environment and especially social environment which relates to opportunity structure. Then the problem of indicator setting is raised particularly proxy one due to the unobservable empowerment nature. In addition, measuring indicator's appropriateness and validation is also augmentable. This argument has to include an issue related to the supporting theory. It is important to obtain theoretical support to set the measuring indicators to strengthen their validity.

There are other issues of measuring empowerment. One is to what extent quantitative measurement can be possible and make sense. Another is how to mix the qualitative measure and quantitative measure. Issue how to quantify qualitative data remains including its necessity and appropriateness. Time to measure is also an issue because some effect can be found immediately after the intervention but impact (DAC evaluation's impact) of including unexpected ones may bring about after certain time has passed. It is critically important to consider issues whether the data of these indicators are practically collected in terms of cost, time and robustness and accuracy. In addition, depending on the set of indicators, independence/correlation problems among the indicator problem are raised.

4) Measuring indicators in general

There are numerous previous research and Alsop et al. try to organize.⁷⁾ World Bank itself introduces measuring indicators by the initiative of Narayan³⁰⁾. The proposed indicators are diversified by contexts, sectors and researchers. However, several indicators are found in common. These indicators are related to concepts of voice and participation. This participation is not input factor but can be usable for outcome indicator in terms of increase in the number or opportunities and so on. Other indicators include choice, access, assets, voice, and mobility⁶⁾. The trial effort also exist to integrate these indicators into HDI (human development indicators), however, any proposed measurement indicators still have problems on comparability and robustness⁶⁾.

Next, from the proposed conceptual model, which stresses and explicitly addresses the change of perception and action factually taken, the authors recognize that the indicators should be composed of perceptual one and action taken related one. For instance, perceptual indicators are related to perception of capacity increase, self-confidence increase and so on before and after, or with and without. Eylon and Bmbereger distinguished a focus on empowering structures, policies, and practice and a focus on perceptions of empowerment³¹⁾. They stated that perception of empowerment focus on individual reactions exert influence to the structures, policies, and practice. So far, however, less research has been found to discuss indicator issues separating perceptual and action related empowerment measuring indicators.

5) Measuring indicators specific to Infrastructure

From measuring indicators proposed by the researchers, the authors try to find the indicators specifically related to infrastructure projects. Regarding perceptual indicators, the previously proposed indicators can be applicable to also infrastructure project case. They are related to change of sense in confidence, self-esteem, self-efficacy, self-control and self-awareness and so on.

On the other hand, specific indicators for actions related to infrastructure projects can be found such as productivity of certain construction works. They are for instance such as earth moving rate change, pavement extension rate etc. Change in claim numbers and change in dispute resolution numbers can be also infrastructure specific indicators. In addition, the number and quality change of voluntary action related to construction works such as in-cash and/or in-kind contribution by the actors also have a possibility to be adopted as an indicator. Because infrastructure projects attract a lot of stakeholders and use certain

amount of fund, actions taken against fiduciary risk such as corruption may be also considered a measuring indicator. Infrastructure needs the maintenance after completion, so, situation of maintenance also cannot be ignored to consider. It makes sense to include the indicator represent the beneficiary's contribution degree to maintenance works.

6) Supporting theories

It is unavoidable to discuss theories to support and clarify the measuring indicator appropriateness. The theories to emerge empowerment and justification of the indicators to measure are still continuous research theme. In community psychology field, there is research addressing theory of emerging empowerment by Zimmerman et al.^{27,28,32)}. In education sector, Lord et al. preceded the research for identifying the theory²⁶⁾. In health sector, Shearer³³⁾ introduce the health empowerment theory partly based on Roger's Science of Unitary Human Beings³⁴⁾ focusing on nursing and older adults. From economic viewpoint, Khwaja discusses the empowerment theory differentiating empowerment as ends and as means³⁵⁾. The research of empowerment theory specifically related to infrastructure and its development process, however, has not been found.

7) Necessity of further effort

The authors recognize that the proposed intervention/input factors and measuring indicators need further discussion and research. In this paper, the factors and indicators do not still fully reflect the aspects of infrastructure project, although tried to identify the specific characteristics as shown Appendix A. Next, from the discussions and examination of this paper, critical difference is not found between development assistance field and other context (OECD member countries situation). Appendix B trial comparison of context between development assistance and other is tabulated. These two comparisons themselves, however need further examination. These efforts are indispensable to set of more qualified and practical intervention/input component and measurement indicators in addition to the empowerment emerging model upgrading.

6. CONCLUSION AND FUTURE TASK

By in depth literature review and review the cases, several findings are identified. First although definition varies depending on the researchers, contexts including development assistance field, there are common concepts. Definitions of empowerment have the common terms of: change, choice, action, capacity,

desired society, self, endogenous, participation etc. Second, the mechanism of emerging empowerment is shared among sectors and the contexts. The shared key factors to empowerment are agency and structure. Third, issue exists on categories of empowerment classified as on level, domain and dimension although the word usage is different depending on sectors and researchers. It is not possible practically to address all of the categories of empowerment. Due to the object of research, practical applications and necessity, there is a need to determine a focus.

A conceptual model of emerging empowerment was proposed as a trial. For this model, intervention/input factors and measuring empowerment indicators were presented. Those factors and indicators are proposed taking into consideration the context

of development assistance field and infrastructure project characteristics focusing on process of the projects.

On the other hand, some implications and tasks also remain. Measuring empowerment is still on the way and provokes huge argument. How to set of intervention/input factors also need more consideration. Accordingly, it is necessary to address the issues to establish the factors and indicators with theoretical support. In addition, further continuous and deeper discussion is required how to consider the perspectives of infrastructure and development assistance. Finally the issues for setting factors and indicators are strongly associated with data collection. The attention shall be given more how to deal with the data collection practicability. These tasks strongly influence to facilitating the related future research.

Appendix A Characteristics Comparison table for Infrastructure and other sectors

Sector	Infrastructure	Education	Medical/Health	Governance	Agriculture
1) Product	Physical Structure building etc.	Teaching Material, Curriculum, CD	Drug, System Booklet, CD	Draft law, System Organization	Crops
2) Necessary Resources	Big(material, equipment, laborer, management)	Less	Less	Less	Medium
3) Need of mobility	high	medium	Medium	Medium	High and Medium
4) Investment	Highly Possible	Less possible	Less possible	Less possible	Possible
5) Impact Degree to Environment	High	Low	Low and medium	Low	High

- 6) Visibility (Progress): Infrastructure>agriculture>education, medical/health>Governance
7) Influence to daily life: Infrastructure>agriculture>medical/Health>Governance
8) Time for effect, Short to Long: Infrastructure, agriculture. >Medical/Health>Education, Governance
9) Irreversibility degree, High to Low: Infrastructure> Medical/Health> Education> Agriculture> Governance (modification difficulty included)
10) Movability, Low to High): Infrastructure> Agriculture> Education> Medical/Health > Governance
11) Project Management Importance: Infrastructure> Agriculture> Education> Medical/Health > Governance
12) Load for consensus building: Infrastructure>Governance > Education > Agriculture > Medical /Health
13) Land acquisition importance: Infrastructure, agriculture> Medical/Health, Education, Governance

Note: Building and facility construction are included in infrastructure sector.
Rating on the table and order below the table are purely depend on the authors' subjective views.

Appendix B Situation Comparison table between developing countries and the other countries

Target/ Items	Developing Countries Urban	Developing Countries Rural	The other Countries Urban	The other Countries Rural
Population Density	High	Low	High	Low
Literacy/numeracy Education Degree	Medium to Low	Low	High to medium	High to medium
Infrastructure	Medium to less	Less	High	High
Information Access	Medium	Low	High	High
Cash Income	High to low	Low	High to Medium	High to Medium
Job Opportunity/ Variety	Medium to Low	Low	High	Medium
Tradition binding	High to medium	High	Low	Medium to Low
Social Safety Net	Low	Low to medium	High to medium	High to medium
Social structure Accountability Tie, Trust, Discipline Network	Medium to low Low to medium Low to medium	Medium to low High to medium Low to medium	High to medium Low to medium Low to mediums	High to medium High to medium High to medium
Funder	Outside(donor)	Outside(donor)	Inside	Inside
conditionality	High	High	Low	Low
Burden of the target	low	low	Medium(tax)	Medium
Note:	Rating high, medium and low is purely based on the authors' subjective view.			

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