Forthcoming in

Social Capital and Well-Being in Developing Countries

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Can Investments in Social Capital Improve Local Development and Environmental Outcomes? A Cost-Benefit Framework to Assess the Policy Options (Jonathan Isham)

Introduction

So what? So we now have a range of empirical evidence that social capital--"the norms and networks that facilitate collective action" (Woolcock 2001)--affects the delivery of certain developmental and environmental services at the local level.[1]

From a public policy perspective, does this really matter? After all, one of the most striking empirical conclusions on the relationship between social capital and economic outcomes is found in the groundbreaking work of Putnam (1993): that the forms of reciprocity and trust which are key determinants of the relative economic success of Northern Italy in the late 1900s were established in the early 1200s. It is hard to imagine a more depressing conclusion for policy practitioners: mix a pinch of trust with a dash of social cohesion; then let simmer for six or seven centuries. Such path-dependence leaves little room for the efforts of eager policy makers.

In this chapter, this question is addressed from the perspective of a development or environment practitioner. Specifically, the material in this chapter focuses on

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[1] Recent micro-empirical evidence that, at least for some types of economics goods, social capital has a relatively large effect on developmental and environmental outcomes is found in Narayan and Pritchett (1999); Grootaert (1999); and Isham and Kahkonen (1999a, 1999b).

investments in development projects whose objectives are the improvement of a subset of the capabilities of well-being[2] among a subset of the poor in a specific country. In particular, the focus is on projects whose primary objective is the improved delivery of local services; and whose implementation will (to some degree) depend on decentralized service provision from the staff of government ministries who are working in the field, from the staff of local NGOs, and from the intended beneficiaries. This would include developmental and environmental projects, for example, whose objective is cleaner drinking water, better health facilities, or more effective primary schools in a set of villages in a developing country.

This chapter argues that, in three related ways, these recent empirical results do matter for development and environment practitioners--even as they imply that such practitioners should not always be advocating 'investments' in social capital.[3]

First, potential investments in social capital should be considered only alongside potential investments in physical and human capital during the planning of most development projects. Specifically, the chapter argues, development and environment practitioners can use a cost-benefit framework to assess how elements of the social structure may affect the performance of local development and environmental outcomes. Using such a framework leads to the conclusion that only in a limited number of cases

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[2] Following the perspective on capabilities and well-being of Sen, which is related to the analysis of well-being of Dasgupta.

[3] It is regrettable that economists wear such blinders with respect to the non-empirical results of other social scientists. Only with the recent use of the label 'capital' (since Loury (1977)) and more recent validation with econometric evidence (Putnam 1993; Narayan and Pritchett 1999) have most economists started to pay attention to what many non-economic social scientists have been showing for many years (Esman and Uphoff 1984; Salmen 1987; Rogers 1995): that elements of the social structure are critical determinants of developmental and environmental outcomes.

will investments in social capital--primarily through financial contributions to or training of local organizations--be called for.

Second, even where investments in social capital may not be called for, the potential effect of social capital on a proposed development project should be assessed in the first phase of planning of most development projects -- since social capital may be a substitute or a complement to other inputs which affect project performance. The sunk costs of this kind of informal or formal 'social assessment', the chapter argues, will in many cases be relatively small.

Third, by using social assessments and by considering the costs and benefits of potential investments in social capital, development and environmental practitioners should advocate, in selected cases, that projects undertake no activity at all in low social capital villages. Unless equity considerations dictate that certain projects should be targeted to poorest communities (including those that have very low levels of social capital), this may be the right policy prescription for many types of development assistance.

The chapter is organized as follows. Section I presents a policy-oriented perspective on what social capital is and how it may affect local development and environmental outcomes. Section II argues that the potential influence of social capital critically depends on the nature of economic goods that development projects are designed to deliver. Section III shows how one can evaluate the expected stream of benefits and costs associated with various forms of social capital. Section IV presents such an evaluation in the case of the provision of clean water, and Section V concludes.

I. Social Capital and its Possible Effect on Local Development and Environmental Outcomes

The premise of the concept of social capital begins with the observation that recurring and patterned social interactions within a well-defined boundary form a local 'social structure'[4], and that the characteristics of this social structure will affect many economic decisions of agents within that boundary. Specifically, the local social structure may affect economic decisions and outcomes through three main mechanisms: information sharing; the impact on transaction costs, and the reduction of collective action dilemmas.[5]

First, social structures can affect information sharing among agents. When agents interact frequently in local organizations and networks and in the observance of local norms (for example, at an annual village festival), they are more likely to observe each other's behavior (one-way information sharing) and to exchange information about their daily lives (two-way information sharing). By contrast, when local organizations, networks and norms exclude different groups of agents (for example, lower castes), they can diminish the frequency of one-way and two-way information sharing.[6]

Second, social interactions can affect the level of transactions costs associated with many market exchanges. When agents frequently and regularly interact in social

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[4] A social structure can be defined as "recurrent and patterned interactions between agents that are maintained through sanctions" (Swedberg 1994).

[5] General discussions and additional examples of how local social structures are associated with information diffusion, transactions costs and collective action are found in Esman and Uphoff (1984), Nugent (1993), Dasgupta (1997), Woolcock (1998), and Collier (1998), among others.

[6] For example, Barr (1997) finds empirical evidence that information diffused via social networks helps to explain productivity difference among Ghanaian enterprises.

settings, they establish patterns of expected behavior and build bonds of trust. Combined with the possibility of social sanctions, this lowers the likelihood of opportunistic behavior by agents that are in the same social structure. By contrast, the lack of cooperative norms within social structures can to lead higher transaction costs and more inefficient markets.[7]

Third, without selective constraints, agents in many settings will not have an incentive to participate in mutually-beneficial collective action (Olson 1965) like contributing to the construction of a community-based water system or maintaining a feeder road. Frequent and regular interactions in social settings lead to the development of institutions that can serve as such constraints, thereby lowering the incentives of individual agents to free ride.

As illustrated by these three mechanisms, elements of the social structures often serve as constraints on economic decisions. Accordingly, a social structure can be regarded as an institution, a "set of constraints which governs the behavioral relations among individuals or groups" (Nabli and Nugent 1989). Importantly, this definition encompasses both formal institutions such as the rule of law and informal institutions such as "cultural rules and codes of conduct which … can constrain the relationships between different individuals and/or groups" (Nabli and Nugent 1989). Following this definition, local social structures which affect the optimizing behavior of economic agents and can increase (or decrease) overall levels of well-being within a community are informal institutions.

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[7] For example, Brautigam (1997) finds empirical and case-study evidence that culturally-based networks have reduced information uncertainties and principal-agent problems in eastern Nigeria's

This institutional perspective conforms to the definition of social capital of Schiff (1992) as "the set of elements of the social structure that are arguments or inputs of production or utility functions."[8] This functional view can help development and environmental practitioners to assess how specific characteristics of social structures may affect the stream of costs and benefits associated with potential projects designed to improve the well-being of the poor.[9]

To illustrate (and to guide the subsequent development of the arguments in this chapter), equation 1 presents a functional relationship[10] between the deliverable of a development or environment project in year t (Q_t) and the vectors of available productive inputs in that year (K_t, L_t, H_t, and S_t):

(1) $E_{t'<t} Q_t = A_t * Q(K_t, L_t, H_t, S_t)$

where K_t is physical capital, L_t is labor, H_t is human capital, S_t is social capital, A_t is a (factor neutral) productivity shifter[11], and $E_{t'<t}$ denotes that this is the expected[12] productive relationship of a development project in a previous year t'.

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manufacturing zone; and Gambetta (1988) documents how norms reinforced by the Mafia in southern Italy lead to higher transactions costs and poorer quality of goods and services.

[8] The complete definition of Schiff (1992) is: "Social capital is the set of elements of the social structure that affect relations among people and are inputs or arguments of the production and/or utility function." This is one of the class of 'functional' definitions of social capital consistent with the influential formulation of Coleman (1990): "Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common. They all consist of some aspect of a social structure, and they facilitate certain actions of individuals who are within the structure."

[9] This institutional view and definition of social capital conforms to the conclusion of Dasgupta (1998): "The term social capital is here to stay ... as a useful metaphor to draw attention to those particular institutions serving economic life that might otherwise go unnoticed. Once attention is drawn to them, we need to try to understand them and find ways of improving them or building around them." For a discussion of whether the use of the term 'capital' is justified in reference to elements of the social structure that affect economic decisions and outcomes, see Isham (1999).

[10] A similar production function framework which incorporates social capital is presented in Dasgupta (1998) and Grootaert (1999), among others.

[11] Depending on the nature of the good, A_t may be associated with, for example, exogenous weather shocks or country-level characteristics.

This equation (based on the definition of Schiff (1992) and the perspective on social capital presented above) allows one to consider alternative possibilities for the expected productive role of different elements of the social structure alongside more standard productive inputs and the productivity shifter. Four alternative possibilities are considered below for the expected production of a specific deliverable Q_t -- for example, the quantity of clean water available per household per week in a specific community -- associated with a potential development project.

First, if the expected direct productivity of at least one element of the social structure (S_{it}) is positive:

(2) $E_{t'<t}(\partial Q_t/\partial S_{it}) > 0$

then there may exist some justification for investments in that element of the social structure as a form of social capital. For example (as further discussed below), if experience in a region suggests that the presence of active civic associations will associated with the delivery of higher levels of clean drinking water, then this is a necessary but not sufficient condition for a possible investment these civic associations.

Second, if the expected direct productivity of all j elements of the local social structure is nil:

(3) $E_{t'<t}(\partial Q_t/\partial S_{it}) = 0,$ i = 1 … j

then there still may exist some justification for investments in some element of the social structure as a form of social capital, as long as one of the following conditions hold:

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[12] By, say, a team of development or environment practitioners and other stakeholders who are beginning to design a project in year t'.

(4) $E_{t'<t}(\partial K_t/\partial S_{it}) > 0$; $E_{t'<t}(\partial L_t/\partial S_{it}) > 0$; or $E_{t'<t}(\partial H_t/\partial S_{it}) > 0$,

$$i = 1 \ldots j.$$

In other words, if some element of the social structure has a productive role in the creation of physical capital, labor, or human capital which in turn affects the desired output (so that $E_{t'<t}(\partial Q_t/\partial K_{it})*(\partial K_t/\partial S_{it}) > 0$), then there still may exist some justification for investments in that element of the social structure. For example, if participation among women in local women's groups is positively associated with higher levels of knowledge among women -- including productive knowledge about maintaining clean water taps and drinking vessels -- then a possible investment in such a local women's groups may be justified.

Finally, there is also a real possibility, in many cases, that some elements of the social structure have a negative effect[13] on the expected output, either directly or indirectly:

(5) $E_{t'<t}(\partial Q_t/\partial S_{it}) < 0$

(6) $E_{t'<t}(\partial K_t/\partial S_{it}) < 0$; $E_{t'<t}(\partial L_t/\partial S_{it}) < 0$; or $E_{t'<t}(\partial H_t/\partial S_{it}) < 0$,

$$i = 1 \ldots j.$$

For example, in regions where social norms prohibit the education of girls, this element of the social structure will (indirectly) lower outcomes that depend on the productive role of local human capital. In such cases, while investments in this form of social capital are ruled out by definition, the presence of this form of social capital may (as further

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[13] Note that in this case they would still conform to the definition of Schiff (1992) as a form of social capital: as in the case of physical capital inputs or human capital inputs, some elements here can have a negative effect on production.

discussed below) call into question the implementation of the proposed development project.

To summarize this section, the definition of Schiff (1992) conforms to a functional view of social capital (Coleman 1990) whereby elements of the social structure can affect development and environment outcomes through three main mechanisms: information sharing; the impact on transaction costs, and the reduction of collective action dilemmas. The expected functional relationship between elements of the social structure and the proposed deliverable -- as summarized in equations (1) - (6) -- can serve as a guide to potential investments in various forms of social capital.

II.   Social Capital and the Nature of Economic Goods

This section argues that the expected functional relationship between elements of the social structure and the proposed deliverable -- through information sharing; the impact on transaction costs, and the reduction of collective action dilemmas -- critically depends on the nature of economic goods that development projects are designed to deliver.

Following a standard public economics framework, Table 1 begins by delimiting the nature of economic goods that development projects may be designed to deliver.[14]

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Where projects are promoting the delivery of selected private goods--particularly those with large information spillovers--the potential influence of social capital through

information sharing is high. For example, there are large spillovers in the diffusion of
many complex agricultural technologies (Foster and Rosenzweig 1995; Pomp and Berger
1995): agricultural households tend to observe, ask questions of, and imitate the adoption
patterns of their neighbors.[15] Much economic and non-economic research suggests that
the characteristics of social structures are critical determinants of the way that
information is diffused among such households (Rogers 1995).[16] Because of the non-
exclusive and non-rival nature of such a good, transaction costs and collective action
dilemmas are less likely to affect directly its delivery. Under conditions where
households face relatively undistorted market prices for the purchase of a private good,
neither principal-agent problems nor collective action dilemmas will have a relatively
large influence on the intended development outcome.[17]

By contrast, where projects are promoting the delivery of selected toll goods (for
example, many kinds of irrigation systems[18]), the potential influence of social capital
through information sharing is relatively low: in general, the use of such a good by a

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[14] See World Bank (1994) for a more detailed presentation on how development initiatives
(particularly infrastructure projects) can be helpfully classified according to their rival and excluxive
characteristics.

[15] Such a positive externality, of course, provides an economic justification for investments in the
delivery of this type of private good. The economic justification for investments in common pool
resources, toll goods, and collective goods are primarily associated with their non-exclusive or non-rival
characteristics.

[16] For example, Isham (1999) finds that among agricultural household in the plateau zone of
Tanzania, tribally-based social affiliations act as a form of social capital in the decision about adopting
improved fertilizer.

[17] This is not to deny that poor country-level institutions, such as corruption and low civil liberties,
have a detrimental affect on much market activity, primarily through increasing opportunistic behavior.
Section X below includes a discussion of this point.

[18] Not all irrigation systems are toll goods: where the water source is limited or congestion affects
are large, irrigation systems have a higher degree of rivalry, so that a household-by-household pricing
system is more appropriate than a toll-based pricing system.

respective member is not characterized by large information spillovers.[19] However, in

the case of toll goods, the potential influence through transactions costs is high. In most

settings in the developing world, sustained management of decentralized toll goods

depends on the performance of local leaders and (in the case of most development

projects) the performance of staff of government ministries or local NGOs. Where norms

of mutual trust between these stakeholders and project beneficiaries are low,

opportunistic behavior -- in the form of financial corruption or shirking -- will be more

prevalent.

In addition, because of its non-rival nature, collective action dilemmas may also

affect the delivery of such a toll good -- particularly in the early stages of service design.

Consider the case of 'demand-driven' community-based water systems with piped

technologies, where the mobilization of community resources is a necessary but not

sufficient condition for receiving project assistance (Garn 1998). In such cases, unless a

small number of households have an encompassing interest to contribute most of the

community inputs (Olson 1965), community norms of reciprocity are often necessary for

individual households to commit initially their time and resources to such a service, as

opposed to free-riding on the expected commitments of others.[20] Norms of reciprocity

that may lead to a village-level commitment to undertake a new water service, for

example, may be based a village tradition of building and maintaining local schools.

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[19] Information diffused from project staff to project beneficiaries may play a role, of course, in the
performance of a toll good. But, except as it is affected by principal-agent problems (as discussed below),
such information diffusion is not likely to be affected by the local social structure.

[20] In many such cases, as shown by Olson (1965) and others, no activity will be undertaken.

Where projects are promoting the delivery of selected common property resources (for example, a community forest), the potential influence of social capital through transactions costs is also high. As in the case of toll goods, sustained management of common property resources often depends on the performance of local leaders and (in the case of most projects) of project staff. Because of the non-rival and exclusive nature of these goods, the potential influence of social capital through collective action is even higher. As in the case of tolls goods, the presence of active local groups and norms of reciprocity will provide a critical incentive for individual households to commit their time and resources to start such an activity: but in the case of common property resources, such elements of the local social structure will also improve the management of common property resources in diverse settings (Ostrom 1990). In the management of community forests, for example, village norms of reciprocity will affect the likelihood that households will harvest only their allocated share of trees.

Finally, where projects are promoting the delivery of selected collective goods (for example, feeder roads), the potential influence of social capital through transactions costs and collective action will also be high, for the reasons specified above: leaders and project staff may divert finances or shirk in the absence of selected norms of trust; and active local groups and norms of reciprocity provide a critical incentive for individual households to commit their time and resources to such an activity. But since there is no rivalry in the consumption of collective goods (in the absence of congestion effects), the free rider problem overall is relatively lower than in the case of common property resources. Put another way, dilemmas of collective action will be prevalent in the design

and the maintenance of a collective good, but not (as in the case of a common property resource) in its use.

To summarize, the information in this table suggests that social capital will have the highest possible influence in projects designed to provide common property resources, and the lowest possible influence in projects designed to provide private goods (characterized by a positive consumption or production externality).

These relative possibilities, though, do not of themselves provide a guide to development and environmental practitioners about possible investments in social capital for specific projects. Assessing the expected stream of benefits and costs associated with social capital, in the case of each type of economic good, does begin to provide such a guide.

III.   Social capital and the stream of benefits and costs

With this perspective at hand -- that elements of the social structure can be viewed as potential inputs into the production of the deliverable of a development or environment project; and that the expected functional relationship between elements of the social structure and the proposed deliverable critically depends on the economic nature of the deliverable -- one can then begin to evaluate the expected stream of benefits and costs associated with various forms of social capital.

Consider first the benefits. Building on the notation established in Section II, let the expected benefits (at time $t' < t_o$) of a potential project which may be undertaken from

time t_o to t_n be $\{B(t_o), B(t_1) \dots B(t_n)\}$, so that the expected present value of the benefits at time t_o is:

$$(7) \qquad E_{t'<t0}\, \mathrm{PVB}_{t0} = \Sigma[B(t_i)/(1+r)^i], \qquad\qquad i = 1 \dots n$$

(where the summation is indexed over i from 0 to n).

In addition, let the expected benefits of the potential project be increasing and concave in production of the deliverable in each year, so that:

$$(8) \qquad E_{t'<t0}\, \partial B(t)/\,\partial Q_t > 0,\ \ \partial^2 B(t)/\,\partial Q_t^2 < 0.$$

In other words, the benefits of the project -- for example, improved health due to cleaner and more reliable drinking water -- will be positively related to the quantities of the deliverable, and the marginal benefits of increasing amounts of the deliverable are decreasing.[21]

By combining material in equations (1) -- (8), one can formally note that:

$$(9a) \qquad E_{t'<t0}\, \partial\mathrm{PVB}_{t0} / \partial S_{it} > 0,$$

when (2) holds or when (3) and (4) hold; and that:

$$(9b) \qquad E_{t'<t0}\, \partial\mathrm{PVB}_{t0} / \partial S_{it} < 0,$$

when (5) or (6) hold. In other words, social capital will have at positive (negative) effect on the expected present value of a development project only when at least one element of the local social structure has a positive (negative) effect on the production of the deliverable at some time in future.[22]

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[21] Each reader is invited to fill in the following blank as to why, in the case of a technology that she/he knows well, this is not a particularly good assumption: _____ .

[22] It is of course possible that some elements of the local social structure have a positive effect on the production of the deliverable while others have a negative effect, thereby making the sign of $\partial\mathrm{PVB}_{t0} / \partial S_t$ unknown.

In addition, by combining the same material and the analysis on the relationship between social capital and the economic nature of the different deliverables, one can formally note that (*ceteris paribus*):

(9c) $E_{t' < t_0} \, \partial PVB_{t_0} / \partial S_{it} \, |_{CPR} > \, \partial PVB_{t_0} / \partial S_{it} \, |_{T, C}$,

(9d) $E_{t' < t_0} \, \partial PVB_{t_0} / \partial S_{it} \, |_{CPR} \gg \partial PVB_{t_0} / \partial S_{it} \, |_{P}$,

when (2) holds or when (3) and (4) hold; and where $|_{CPR}$ denotes a project whose primary deliverable is a common property resource in a specific region; $|_T$ and $|_C$ denotes projects whose primary deliverables are (respectively) a toll good or a collective good in the same region; and $|_P$ denotes a project whose primary deliverable is a private good in the same region. In other words, social capital in a specific region will have a much greater (greater) effect on the performance of common property resources (toll goods or collective goods) than on private goods.

Why are (9a - 9d) useful[23] as one is thinking about assessing the policy options associated with a potential development project? These equations formalize the potential relationship between elements of the local structure, other potential productive inputs, and project benefits. Addressing the implications of these equations suggests that one can productively use such a cost-benefit framework to address specific policy options. As argued below, these equations imply that development and environment practitioners need to take the potential effects of social capital into account----even as they imply that such practitioners should not always be advocating 'investments' in social capital.[24]

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[23] Besides being an economist's excuse to show in equations what can be described in words!

[24] Note that the advocacy here of this kind of cost-benefit approach is consistent with the fact that exact cost-benefit calculations are being de-emphasized at the World Bank and in other development institutions. As advocated here, an understanding of the potential relative effect of social capital on the stream of costs and benefits is consistent with the policy-based arguments of Devarajan, Squire and

First, using this kind of cost-benefit framework shows that potential investments in social capital should be considered only alongside potential investments in physical and human capital during the planning of most development projects. While (9a) summarizes the possibility that social capital will be expected to have at positive effect on the present value of some development projects, the relative magnitude of this positive effect should be compared to the corresponding (expected) effects of physical capital, labor, and human capital.

This leads to the conclusion that only in a limited number of cases will investments in social capital--primarily through financial contributions to or training of local organizations--be called for. These cases are when: the economic good that a development project is designed to deliver is characterized by high levels of non-exclusiveness or non-rivalry; when the discounted stream of expected benefits of incremental social capital is significantly greater than the corresponding discounted stream of expected costs; and when the uncertainty about potential damages to the local social structure through such financial contributions is minimal. This latter case is particularly important because, in many villages, outside intervention has the potential to can significantly harm the local social structure [Citation and discussion].

Second, since social capital may be a substitute or a complement to other inputs which affect project performance (equation (9a), when (3) and (4) hold), the potential effect of social capital on a proposed development project should be assessed in the first phase of planning of most development projects--even when the potential for financial

Suthiwart-Narueput (1995) that there should be a 'shift in emphasis away from a concern with precise rate of return calculations to a broader examination of the rationale for public provision.'

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contributions to or training of local organizations is unlikely under project financing. The sunk costs of this kind of informal or formal 'social assessment' will in many cases be relatively small.

Social assessments are "systematic investigations of the social processes and factors that affect development impact and results"(World Bank 1996). Since the early 1990s, they have been used in a wide range of development initiatives to identify key local stakeholders; to assure that social differences are taken into account in the design of development projects; and to assure that social differences do not limit service delivery (McPhail and Jacobs 1995a). Social assessments are relatively inexpensive: the average cost of social assessments in 42 reviewed development projects was less than $100,000 (McPhail and Jacobs 1995b).

Accordingly, using social assessment in the design of most development projects is likely to be a cost-effective way to enable outside stakeholders, including government officials, representatives of NGOs, and staff of donor agencies, to identifying villages within a target region that have relatively high (and low) levels of local social capital. Specifically, social assessments may also help to identify how other characteristics of villages impede the flow of information among different sets of households; effect transactions costs; or reduce collective action dilemmas. For example, in villages with high levels of inequality and norms that discourage social contacts between the rich and the poor, these norms would hinder the flow of public information about agricultural practices from the rich to the poor. Overall, this information can provide information on which villages will, *ceteris paribus*, have higher expected returns to a specific

development project.

Third, by using social assessments and by considering the costs and benefits of potential investments in social capital, development and environmental practitioners should advocate, in selected cases, that projects undertake no activity at all in low social capital villages. Using the cost-benefit framework presented above, this would be in the case of (9b) and when when (5) or (6) hold, and when the economic rate of return of a proposed project in a specific region[25] is below some standard criteria.

Less formally, this would be true when the costs of investing in physical capital, labor, or human capital in a certain region do not generate enough benefits -- precisely because levels of social capital in that region are low. Accordingly, this kind of framework suggests that the primary investment of some projects--say in some types of community water systems--should not be undertaken in some villages precisely because: low social capital dramatically reduces the likelihood of project success; and -- relative to high social capital villages -- the potential benefits of investments in social capital do not outweigh the likely costs. Unless equity considerations dictate that certain projects should be targeted to poorest communities (including those that have very low levels of social capital), this may be the right policy prescription for many types of development assistance.

If equity considerations do dictate that certain projects should be targeted to poorest communities, then the allocation of investment resources for such projects may need to must be adjusted to take into account the local social structure. Consider, for example, investments in agricultural extension. If national policy dictates that

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[25] The discount rate r that sets the net present value of the deliverables in that region equal to zero.

investments in extension should be targeted to the poorest villages, the allocation of investment resources for extension programs may need to must be adjusted to take into account the characteristics of local social structures. Possible adjustments include investments in the strengthening of local organizations (for example, through direct training about new agricultural techniques); and in more direct follow-up with individual farmers to counteract likely patchwork patterns of adoption in areas where the social structure impedes the flow of information.[26]

IV.   The case of the provision of clean water

[The case of clean water -- To be completed, based on the material below]

[Begin with case study ….][27] Closeness and familiarity characterize the social relationships among households in Wonorojo. For example, the groups of men and women in the participatory exercises said that neighbors tend to help one another in various tasks (such as building houses) and usually participate actively in various village groups and associations, including those established by the government

How has this social cohesion affected the performance of their water service that was provided by the VIP project? Once a week households get together to clean the water tanks.   They also collectively clean the drains (at the same time that they are maintaining village roads). Sixty-four percent of households interviewed reported that they to contribute to the O&M of the service, and all 25 households that were surveyed

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[26] As, for example, ethnically diverse areas of the central plateau region in Tanzania (Isham 1999).

[27] This case study, and others that discuss the role of social capital in the effectiveness of community-based water projects in Central Java, Indonesia, is found in Isham and Kähkönen (1999b).

said that the service functioned every day without any major problems. Overall, eighty-two percent of households report that their health has improved.

This case study (and other quantitative and qualitative results found in (Isham and Kähkönen 1999a, 1999b) imply that government and donors are unlikely to be able to target successfully all poor villages in need of clean water—as they used to, based on equity grounds, in the supply-driven approach. Following this strategy—that is, not treating water as an economic good and letting outsiders, instead of users, make decisions about whether to build and what kind of services to build—virtually guarantees that many village water projects will fail.

The results in this chapter suggest that the allocation of investment resources for extension programs may need to must be adjusted to take into account the characteristics of local social structures.

The results of the chapter indicated that the chance of introducing effective demand-responsiveness and monitoring mechanisms into water projects is significantly enhanced in villages with more social capital. In villages with high levels of social capital--in particular, with active village groups and associations--household participation in design is likely to be high, and monitoring mechanisms are more likely to be in place. In those villages, households are used to working together and social ties deter free riding. In the case of villages with piped water systems, this is associated with stronger household-level impact.

Also, these results imply that not all villages have the necessary social capital to respond effectively to the introduction of demand-responsive elements, particularly when

they choose a more complex piped system. This suggests that designers of community-based water projects need to pay attention to the prevailing levels of social capital, as one of the factors that will influence service performance, in villages to be served by the project. In particular, the allocation of investment resources for water services may need to be adjusted to take into account the low levels of social capital, and projects may want to avoid investing in community-based piped water systems in villages with low levels of social.

V.   Conclusion

This chapter has used a cost-benefit framework to argue that, in three related ways, recent empirical results on social capital results do matter for development and environment practitioners. First, potential investments in social capital should be considered alongside potential investments in physical and human capital during the planning of most development projects. Using a cost-benefit framework leads to the conclusion that only in a limited number of cases will investments in social capital-- primarily through financial contributions to or training of local organizations--be called for. Second, even where investments in social capital may not be called for, the potential effect of social capital on a proposed development project should be assessed in the first phase of planning of most projects -- since social capital may be a substitute or a complement to other inputs which affect project performance. The sunk costs of this kind of informal or formal 'social assessment' will in many cases be relatively small. Third, by using social assessments and by considering the costs and benefits of potential

investments in social capital, development and environmental practitioners should

advocate, in selected cases, that projects undertake no activity at all in low social capital

villages. The case of the delivery of clean water is used as an example of using a cost-

benefit framework to assess the policy options.

References

Barr, Abigail M. 1997. "Social Capital and Technical Information Flows in the Ghanaian Manufacturing Sector." Mimeo. Oxford: Center for the Study of African Economies.

Becker, Gary. 1974. "A Theory of Social Interactions." *Journal of Political Economy* 82 (6): 1063-93.

Becker, Gary. 1996. *Accounting for Tastes.* Cambridge, MA: Harvard University Press.

Betancourt, Roger R. 1996. "Growth Capabilities and Development: Implications for Transition Processes in Cuba." *Economic Development and Cultural Change* 44 (2): 315-31.

Brautigam, Deborah. 1997. "Substituting for the State: Institutions and Industrial Development in Eastern Nigeria." *World Development* ??:?: 1-19.

Coleman, James. S. 1990. *Foundations of Social Theory.* Cambridge, MA: The Belknap Press of Harvard University Press.

Collier, Paul. 1998. "Social Capital and Poverty." The Social Capital Initiative: Working Paper No. 4. Washington, DC: The World Bank.

Dasgupta, Partha. 1998. "The Idea of Social Capital." Mimeo. University of Cambridge.

Devarajan, Shantayanan, Lyn Squire and Sethaput Suthiwart-Narueput. 1995. "Reviving Project Appraisal at the World Bank." *Policy Research Working Paper* 1496. Washington, DC: The World Bank

Esman, Milton and Norman Uphoff. 1984. *Local Organizations: Intermediaries in Rural Development.* Ithaca: Cornell University Press.

Foster, Andrew D. and Mark R. Rosenzweig. 1995. "Learning by Doing and Learning from Others: Human Capital and Technical Change in Agriculture." *Journal of Political Economy* 103 (6): 1176-1209.

Gambetta, Diego. 1988. "Mafia: the Price of Distrust" in Diego Gambetta (ed.): *Trust: Making and Breaking of Cooperative Relationships*. Oxford: Basil Blackwell.

Garn, Harvey A. 1998. "Managing Water as an Economic Good." In *Proceedings of the*

Community Water Supply and Sanitation Conference. The World Bank.

Grootaert, Christiaan. 1999. "Social Capital, Household Welfare and Poverty in Indonesia." *Local Level Institutions Working Paper* No. 6. Washington, DC.

Isham, Jonathan. 1999. 'A Model of Technology Adoption with Social Capital.' Mimeo. Middlebury College.

Isham, Jonathan and Satu Kähkönen. 1999a. "Institutional Determinants of the Impact of Community-Based Water Services: Evidence from Sri Lanka and Indonesia." Operations Evaluation Department Working Paper. Washington, DC: The World Bank.

Isham, Jonathan and Satu Kähkönen. 1999b. "What Determines the Effectiveness of Community-Based Water Projects? Evidence from Central Java, Indonesia on Demand Responsiveness, Service Rules, and Social Capital" Paper prepared for the the Initiative for Defining, Monitoring and Measuring Social Capital. Washington, DC: The World Bank.

Loury, Glenn. 1977. 'A Dynamic Theory of Racial Income Differences." In P.A. Wallace and A LeMund (Editors). *Women Minorities, and Employment Discrimination*. Lexington, MA: Lexington Books.

Nabli, Mustapha K. and Jeffrey B. Nugent. *The New Institutional Economics and Economic Development*. New York: North Holland.

Narayan, Deepa and Lant Pritchett. 1999. "Cents and Sociability: Income and Social Capital in Rural Tanzania," World Bank Policy Research Paper, The World Bank. Forthcoming in *Economic Development and Cultural Change*.

Nugent, Jeffrey B. 1993. "Between State, Market and Households: A Neoinstitutional Analysis of Local Organizations and Institutions." *World Development* 21 (4): 623-32.

Olson, Mancur. 1965. *The Logic of Collective Action*. Cambridge: Harvard University Press.

Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.

Pomp, Marc and Kees Burger. 1995. "Innovation and Imitation: Adoption of Cocoa by Indonesian Smallholders." *World Development* 23 (3): 423-31.

Putnam, Robert D. 1993. *Making Democracy Work*. Princeton: Princeton University

Press.

Rogers, Everett M. 1995. *Diffusion of Innovations.* New York: the Free Press.

Salmen, Lawrence F. 1987. *Listen to the People.* New York: Oxford University Press.

Schiff, Maurice. 1992. "Social Capital, Labor Mobility, and Welfare: The Impact of Uniting States." *Rationality and Society* 4 (2): 157-175.

Swedberg, Richard. 1994. "Markets as Social Structures." In *The Handbook of Economic Sociology*. Neil Smelser and Richard Swedberg, Editors. Princeton: Princeton University Press.

Woolcock, Michael. 1998. "Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework. *Theory and Society* 27(2): 151-208.

World Bank. 1994. *The World Development Report 1994: Investing in Infrastructure.* New York: Oxford University Press.