

# Theorization of Management Capital in the Resource Management Model (RMM)

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## Introduction

This essay<sup>1</sup> attempts to portray the theorization of management capital in the Resource Management Model (RMM)<sup>2</sup>. The RMM identifies two fundamental resources to be managed: human resources and natural resources. Natural resources usually include forest resources, agricultural as well as pastoral resources, water resources, genetic resources and resources for developing eco-tourism with esthetic as well as ethno-cultural values. Meanwhile, the local population as a human resource is regarded also as part of the natural resources. Natural resource management (NRM) in my definition consists of the management of both human resources and natural resources within a given biophysical environment or those delineated by a certain geographical boundary pursuant to politically administrative functions.

Here, my defining natural resource management (NRM) as “management of human resource and natural resource” implies beyond simple semantics. It rather entails and advocates a fundamental review on orthodoxy in NRM approach. To the extent human resource becomes constitutive part of natural resource on the one hand and that the human resource within managed arena is recognized as a principal agent on the other, human resource is both a subject and an object of management, leading, as a corollary, NRM discussion into that of political regime of self-governance, self-reliance and autonomy as critical part of analysis and research agenda. Terminology such as “participatory natural resource management” (See Vira B. and R. Jeffery (ed.), 2001) does not suffice as it fails to regard such self-management process as cognitively intrinsic

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1 The text constitutes a compiled excerpt from part of Chapters 1 and 3 of the Ph.D. thesis submitted to University of Tokyo, Graduate school of Agriculture and Life Sciences.

2 For discussions designing the Resource Management Model (RMM), see Harago, Y. 2003. A Resource Management Model based on Community Forestry in the Philippines. *TROPICS*. Vol. 13, No. 1, pp. 25–38. The Japan Society of Tropical Ecology, and Harago, Y. 2002. Analysis of Community Forestry in the Philippines and Development of a Standardized Resource Management Model. *The Papers and Proceedings of Economics* (“*Keizai Kenkyu*”), The Society of Economics, Meiji Gakuin University. No. 124, pp. 17–55.

as well as central constituent of NRM actions/activities<sup>3</sup>.

**Figure 1** contrasts this new approach to the conventional one. Whereas new approach internalizes human resource management, referred to in the subsequent discussion as “human resource development” as is usually conceptualized, as a critical process in NRM, the conventional approach disregards or at most separates the element as an independent concern usually away from mainstream resource management agendas. As arrowheads representing management actions indicate, the conventional approach regards human resource management as a means. My approach views itself as part of objectives of NRM.

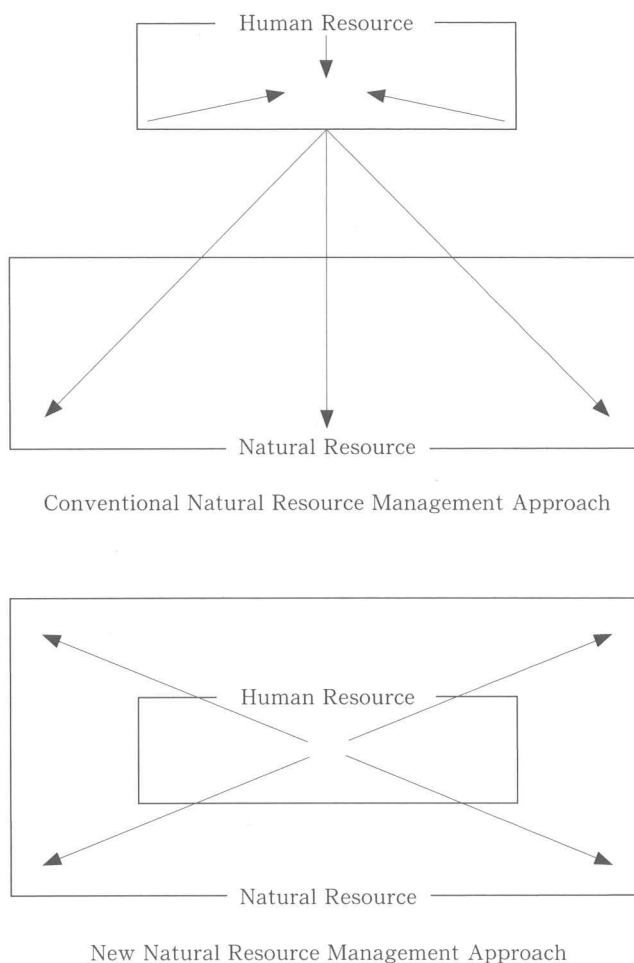
## Management Capital

On the basis of such conceptual resource management approach, the RMM assumes that a viable, cost-effective and efficient management of natural resources in a given environment is attained by the mobilization of human resources therein, through capitalizing themselves as part of “management capital”, by which actions related to NRM would be pursued. Such a resource management approach would integrate the existing human resources into a NRM scheme.

Furthermore, the human resources development would constitute a management capital accompanied by two other prerequisite development components: 1) basic infrastructure and 2) livelihood development, which should support actual mobilization of capitalized human resources. A variety of livelihood development initiatives, such as livestock raising, aquaculture or apiculture, have often been regarded as a sideline incentive and/or a supplementary component in pursuing NRM. Here in the RMM however, livelihood development is recognized as a vital and

3 My conceptual approach can also be defined as participatory natural resource management. Jeffery, R., and B. Vira distinguish various typological modes of participation of local people, such as 1) Passive participation, 2) Participation in information giving, 3) Participation by consultation, 4) Participation for material incentives, 5) Functional participation, 6) Interactive participation, lastly 7) Self-mobilization, in which “people participate by taking initiatives independent of external institutions to change systems” regarded as “self-initiated mobilization and collective action” (Jeffery, R., and B. Vira. (ed.), 2001: 3). Inoue (2001: 57) broadly classifies participation modes into 1) participatory top-down approach, 2) professional-guided participatory approach, and 3) endogenous bottom-up approach.

4 As per discussion to follow, management capital embodies and presents a new conceptual approach in natural resource management concept. My essential motif by which to present this concept concerns a constructive criticism towards currently adopted, widespread natural resource management approach, including those advocated as ecosystem and/or landscape management. Conception in scheming a set of postulates to successful management as “capital”, i.e., an asset by which to draw upon resources for investing in actual management actions/activities, advocates full and integral incorporation of local human and social development agenda into natural resource management as an intrinsic and inalienable element. One could arguably contest to my presenting a new denomination. However, new conceptual presentation is not sufficiently effective but accompanying a new notion. Moreover, management capital denotes a combination of human and social development as well as human and social capital accumulation process, the notion of which would not otherwise be presented. Furthermore, precedent examples exist in conceptualizing new form of capital in the natural resource management context. While natural resource base is often referred to as “natural capital”, indigenous knowledge as highly valuable resource has been called “cultural capital” (Berkes and Folke, 1992; Warren, M., 1999). In the ecological economy context, a purposive capitalism to be directed has been phrased as “natural capitalism” in which natural capital governs industrial norms and behaviors, as opposed to those under “industrial capitalism” (Hawken, Lovins and Lovins, 1999)



**Figure 1. Definition of Natural Resource Management**

indispensable element in resource management initiatives, by way of nurturing management capital furnished by organized and capable human resources. Likewise, basic infrastructure, such as farm-to-market roads, bridges and adequate storage facilities, would also constitute a fundamental component of management capital that would enable the effective mobilization of NRM<sup>5</sup>.

**Figure 2(a)** illustrates a basic structure of the RMM. It is considered that community forestry as a viable NRM strategy will become effective to the extent it is pursued following the

<sup>5</sup> Inoue (2002) notes of the failure examples of conventional social forestry schemes as an initiative towards sustainable NRM, which occur due to the gap in objectives and aspirations between those shared by foresters and local people. While foresters tend to see tree establishment as crucial need to be satisfied, local people's need tends to concern livelihood development such as water supply (Inoue, 2002: 162).

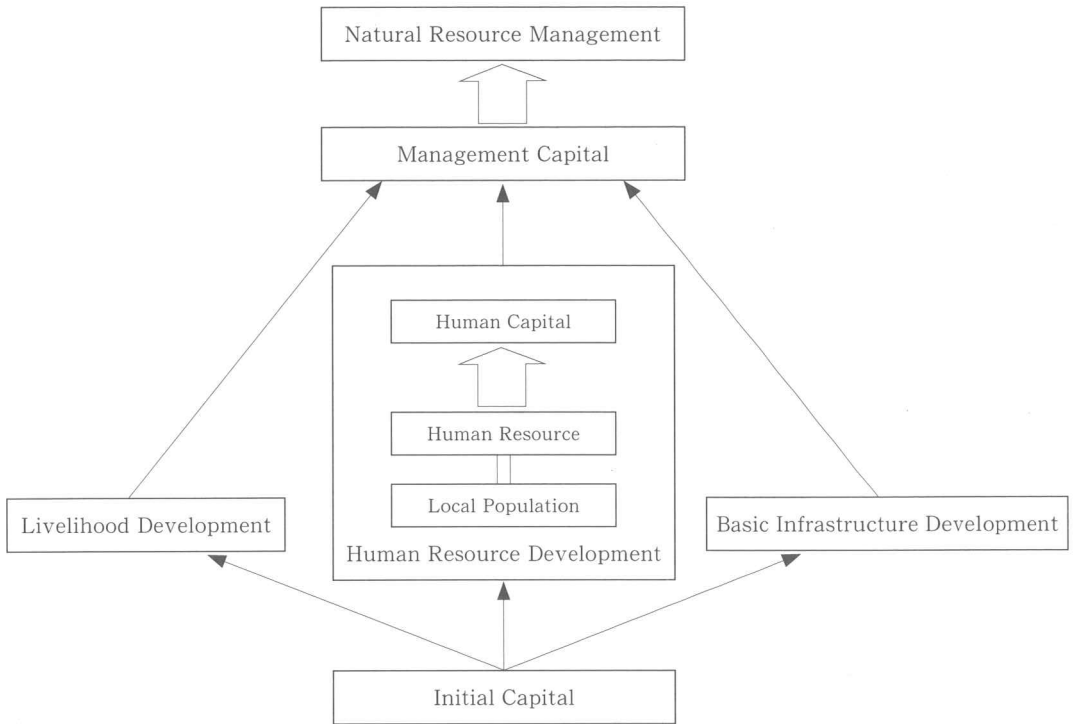


Figure 2(a). Structure of the Resource Management Model (RMM)

satisfactory development of management capital<sup>6</sup>. Management capital is conceptualized by two theoretical backgrounds, such as: 1) theory on development; and 2) theory on capital. The following will discuss the theorization of management capital from the above two perspectives.

## Development Theory Perspective

### Social Development

As shown in the Figure, management capital is comprised of three development components, such as; 1) human resources development, 2) livelihood development, and 3) basic infrastructure development. It constitutes a capital by which to invest and maintain natural resources manage-

6 The concept of community forestry as a viable natural resource management strategy modeled in the Figure 2(a) is akin to that conceived in social forestry or participatory forest management. Inoue views social forestry as the coalescence of management and development components, consisting of 1) participatory forest “management”, and 2) rural “development”, which includes such components as agricultural extension, income generation and infrastructure development (Inoue, 2003: 50–51). Not only does my RMM incorporate these development components of rural development into new interpretation of “management”, it further recognizes human development as a central element of management, as I will discuss in the following. As far as forest “management” as I conceive is concerned, “people’s participation” represents a mere phenomenal interpretation of human development process which is vital to build on management capital. To this effect, people participation is beyond “very important for success in sustainable forest management” (*ibid*; 56), and in itself constitutive to management.

ment. In the RMM human resources development plays a key role, supported by the other two development components. While human resources development relates to human development theory, the development of livelihood and basic infrastructure as a basis for effective NRM concerns social development, which is a broader development concept embodying human development. Following is a theorization of the above management capital components correlated with social development and human development theories.

Addressing by international community the need for social development began after World War II as a complementary element for economic development in which economic growth was a major goal of achievement. Social development, however, started to be perceived since the 1970s not so much a subordinate component as a major objective for many development assistance institutions, focusing on the satisfaction of basic human needs (BHN). The recognition of importance culminated in the organization by UN in 1995 of World Summit for Social Development, in which agendas such as poverty, unemployment and social disintegration were identified as a pressing concern for equitable world development. Human development approaches addressed by UNDP with the designing of Human Development Index (HDI) is part of the endeavor in correctly addressing social development needs countervailing the dominant neoclassical measures in development. The first Human Development Report incorporating the HDI compiled in 1990 defined human development as "a process of enlarging people's choices" in three essential levels of development for people; 1) "to lead a long and healthy life", 2) "acquire knowledge", and 3) "to have resources needed for a decent standard of living".<sup>7</sup>

In the context of development theory, the three development components identified as those constituting management capital reflect the above historical recognition in that the building of management capital constituted by these elements principally concerns materializing social development. While the first management capital element of human resources development directly concerns human development, the incorporation of the remaining two elements of basic infrastructure and livelihood development concerns more with social development needs in general.

Social development in a rural community development perspective is constitutive of three fundamental elements such as; 1) health, 2) education, and 3) production, which can be denominated 1) physical health, 2) mental health, and 3) land health, respectively. The production, or the land health, denotes sustainable production of goods and commodities to guarantee the

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7 Such definition of human development, as so conceived initially by UNDP, correlates with general as well as my defining social development. As I subsequently present a conceptual framework concerning these development approaches, I conceive social development as it subsumes human development on the basis of historical sequence of development arguments. Human development in my definition focuses more on the process of drawing upon one's internal resources — capabilities — to function, rather than on the tangible consequences of such process. The UNDP report recognizes two aspects of human development; 1) the formation of human capabilities such as health, knowledge and skill, and 2) the utilization of acquired capabilities directed towards specific purposes, such as production and cultural, social and political affairs (UNDP, 1990: 10). Such conception reflects UN's ideological trajectories in regard to development. It retains basic human needs (BHN) approach substantially modified by radically contested capability/entitlement approach.

satisfaction of the former two requirements, as well as the upliftment of living standards and quality. The production signifies the capacity to produce on a sustainable basis food and materials for medicine and shelter for meeting subsistence needs, as well as marketable commodities to obtain other goods and services including health and education. It generates both physical and financial assets on a self-reliant basis. To this extent the production means that the community is entitled to engage in autonomous and sustainable generation of basic subsistence, nutrition, health and education requirements without relying, to the maxim extent possible, on external procurements. It also entails equitable land rights as ownership or usufruct rights to be awarded to the local population.

The element of production in social development critically relates to autonomous, endogenous, and self-reliant management of natural resources by the local population themselves, to the extent it brings about physical and financial resources on a continual bases for self-sustenance in satisfying health and education needs, which founds a base for sustainable management of resources on which the very production is based<sup>8</sup>.

## Human Development

The first and critical component of management capital, the human resources development is a process of developing human resources into an organized human capital, which becomes a principal management agent, supported by the other two development components in NRM<sup>9</sup>. It is principally an autonomous and self-reliant process for the local population in recognizing and assuming the role as a principal actor in development by identifying and strengthening capacities they already have with or without outside collaborating agents<sup>10</sup>.

The concept of human resources development first recognizes the importance of having a conscious, enlightened and empowered group of individuals, as a proactive and leading actor to emerge in a given society in the process of acquiring administrative and socioeconomic self-

8 These three elements are consistent with the Human Development Index (HDI) by UNDP which identifies three fundamental elements such as; 1) health (life expectancy at birth), 2) education (adult literacy rate and school enrolment ratio), and 3) purchasing power or monetary production (GDP per capita). In rural economies context, however, where subsistence economy predominates with limited involvement of monetary transactions, the last index can be more appropriately converted into physical production. The physical production can be destined for direct local consumption for subsistence needs, while any surplus may be marketed to account in monetary production (See UNDP, 1990, 2003).

9 The human resources development in my RMM differs to the usual connotation of 'human resource development', the term used in capacity-building in an organizational context, which denotes training staff in such areas as management skills, planning and evaluation techniques in order to enable the organization to work better (See Eade, 1997: 89).

10 The human resources development pursues 'endogenous development' philosophy and approaches as it is adopted in a community level. For a compendium of historical review in the development and application of the concept as an alternative development strategy for society, see Nishikawa (2000). In a wider social context, 'endogenous' development has been historically advocated as a diversified and unique development strategy to be evolved by each society concerned, as an alternative to dominantly standardized 'exogenous' development model (Tsurumi, 1989, 1996; Nishikawa, 2000). Nishikawa draws attention to the element of ecological and environmental conservation in pursuit of endogenous development to the effect it 'relates to the formation of the most optimal community life spaciouly and temporally for regional residents' (my translation, *ibid*: 29).

governance, the process of which constitutes a crucial aspect of development in a true sense. Human resources development as interpreted as education process, critically relates to “conscientização” (Freire, 1970, 1973, 1978), or critical consciousness, to be developed by the local population, which is a process of learning and recognizing a self in historical, socioeconomic and cultural contexts. The process of social organization first requires a group of conscious and enlightened individuals who understand to recognize themselves in such contexts.

This process is particularly relevant and important in discussing development of the populations residing in the societies with lack of or weak tradition of self-governance with usually a historical background of colonial rules and/or politically oppressive systems. The process of social organization through community organization and organizational strengthening of the local population invariably engages the process of epistemological and cultural emancipation of self consciousness embedded in the history. For example in Brazil, the cultures of silence and lethargy, paternalism and domestication dominated since the outset of the foundation of the country, forming a cultural identity for the society as a whole, and especially among rural inhabitants working for regional landowners and commercial bosses. A military coup and its subsequent administration in recent history during 1964–1985 accompanying a culture of oppression is simply an explicit manifestation of such deep-rooted culture.

In such historical and cultural contexts, it is critically important to understand in pursuit of resource management agenda that today's flourishing social and environmental movements in rural areas, for example in Brazil since 1985 after the demise of military government, demanding land reform for ownership and/or due management rights awarded to indigenous, extractivist and small farmer populations, fundamentally and in the first place involves the building of cultural emancipation, critical consciousness and knowledge on the need for reform of such inherited political, socioeconomic and cultural repressions.

Freire awarded an importance in his pedagogical theory to the construction of horizontal partnership for mutual apprentice and learning between those who educate and to be educated, to first be critically aware of social and cultural conditioning in which the rural, mostly illiterate, populations were oppressively located. As a world-known, leading education theorist native in Brazil, his pedagogical approaches have greatly influenced on theories and practice on rural development in Latin America and other Third World countries, underpinning philosophical backings of modern development theory<sup>11</sup>.

The need for critical consciousness on and cultural emancipation from embedded language, culture and associated value systems that historically surround and dominate the rural local population advocated by Freire as an essential process of mutual learning in education draws attention on Sen's definition of development as freedom. Sen defined development as the following.

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11 For example, OXFAM, a British development NGO working in over 70 countries in the world, acclaimed the linked ideas of Liberation Theology with Freire's pedagogic approach defining the role of education as conscientizacao, or critical consciousness building, “inspired and mobilized poor and excluded people on a scale far greater than any other development ‘ideology’ has succeeded in doing either before or since” (Eade, 1997: 10).

“Development can be seen, it is argued here, as a process of expanding real freedoms that people enjoy. Focusing on human freedoms contrasts with narrow views of development, such as identifying development with the growth of gross national products, or with the rise in personal incomes, or with industrialization, or with technological advance, or with social modernization.” (Sen, 1999: 3)

The crucial efforts required in the “process of expanding real freedoms” on the part of those who aspire such freedom lie in the very realization of fact that they have been deprived of freedom. Development of each individual constituting a community begins with the process of consciousness on the freedom that he/she may have been deprived of and that he/she will be able to obtain, since the very existence of freedom to be potentially enjoyed is often made invisible to the him/her on account exactly of the forces of social structure. To this effect, Freire quotes Erich Fromm as the following.

[Man] has become free from the external bonds that would prevent him from doing and thinking as he sees fit. He would be free to act according to his own will, if he knew what he wanted, thought, and felt. But he does not know. He conforms to anonymous authorities and adopts a self which is not his. The more he does this, the more powerless he feels, the more is he forced to conform (Freire, 1973: 6).

Meanwhile, Sen correctly associated poverty as a form of underdevelopment to capability deprivation. Such conception and definition of poverty known as “capability approach”, or “exchange entitlement” approach (Sen, 1981, 1992, 1999, 2002) to defining development<sup>12</sup>, contributes to be aware of two principal actors involved in poverty; those who deprive and those who are deprived. It draws attention to the state of “deprivation” as equally important as “capability” itself, as to questioning why, who and how one’s capability is deprived. The resurrection of capability, therefore, begins as one is cognizant of depriving forces as well as his deprived capability. To be conscious of “being poor” simultaneously leads to the awareness of “being deprived” and, subsequently, of peculiar political and socioeconomic conditions, by which one’s capability has been deprived.

The invisibility and/or deprivation of potential freedom as an indication of underdevelopment that often surrounds a group of individuals residing in rural areas, for which viable resource management regime is contemplated, inevitably calls for associating development agenda

12 By focusing development as a process of one’s awareness on his capability and actual mobilization for practical functioning, Sen’s capability approach critically differs from the characterization of development as; 1) an expansion of goods and services regarded by conventional neoclassical economics, 2) an increase of utility purported by welfare economics (Pigou, 1952), as well as 3) meeting basic human needs addressed by development theories in the 1970s. The approach contributed to the conceptualization of ‘human development’ presented by Human Development Index (HDI) reporting of the United Nations Development Program (UNDP) since 1990. In my theorization of management capital, I conceptualize development as a process of one’s awareness on his capability and his process of realization towards its actual functioning. To this extent, development entails both the epistemological process within oneself and the physical process of material realization, as measured by the above 1) and 3). The material aspects are embodied in management capital by incorporating livelihood and infrastructure development elements, which will be discussed in capital theory in subsequent discussions.



with broader policy perspectives beyond conventional economic theories. Constraints on development are often not economic but rather, or in addition to, political and social. The deprivation of capability occurs in two facets; that of material deprivation, and that of social deprivation. In addition to the former, the latter clearly reminds us the political process, social participation and democracy as inalienable factors to consider in poverty eradication and development as a whole. Furthermore, the 1990 UNDP report recognized that "civil and political rights tend broadly to correlate with equitable economic arrangements...[and] therefore...that civic and political freedom are an essential element of human development, not an optional extra" (Eade, 1997: 16).

Sen expressively recounts the importance of democracy in approaching integral forms of freedom to be enjoyed by such populations (Sen, 1999). He drew attention to correlations between development agenda, such as famines, poverty, population, women in development, and the maturity of democracy and political freedom. He stresses the importance of democratization of societies in Third World countries as no more a pressing concern than efforts to eradicating poverty. In addition to macro-analysis basis, the democratization agenda also applies in a community level. Hence, while the process of human resources development for a group of individuals entails enlightenment and education in a context addressed by Freire, it also invariably involves the practical introduction of democratic decision-making process as far as the social organization of the local population is concerned.

The fulfillment of economic needs as per perceived in development, for example, requires political freedom. Sen questioned a typical argument of addressing dichotomy of having to prioritize and choose between political freedom and poverty elimination. He called attention to the inalienable nature of economic poverty from political freedom to the extent that intense economic needs add to, not deviate from, the urgency of attaining political freedom, based on empirical evidence that famines as an extreme form of absolute poverty have not materialized "in any country that is independent, that goes to elections regularly, that has opposition parties to voice criticisms and that permits newspapers to report freely and question the wisdom of government policies without extensive censorship" (*ibid*: 152-153). In addition to instrumental role of political freedom on economic needs, he also draws attention to the constructive role of political freedom and civil rights in conceptualizing economic needs in social context. These aspects divulged by the theorists such as Freire and Sen contribute significantly to underpinning human development theory in incarnating its crucial nature and elements to be embodied.

Within the context of development theory, the human resources development as a core element in management capital also relates to participatory development approach (Chambers, 1983, 1997), which pursues equitable and cooperative working relationships between the local population and outside development agents. Through the development and application of methodologies such as Participatory Rural Appraisal (PRA), Participatory Learning and Action (PLA) and other derivatives, development has been conceived as a continual endogenous process for the local population to be awakened and conscious of their potential capabilities to be activated through identification and planning of actions towards commonly recognized interests and shared goals, facilitated by outside collaborators.

Summarizing the discussions above, while human development focuses one's epistemological awareness and critical consciousness on historical, political and cultural contexts on which to pursue liberation and functioning one's capability through education, participation and social organization, social development concerns more on one's physical conditions and socioeconomic well-being. To the extent the process of social development defined, in a broad sense of the meaning, includes human development, all management capital components concern social development in which human development is lodged as a central element.

Such interpretation modifies the RMM illustrated in **Figure 2(a)** into **Figure 2(b)**. The Figure shows that the process of social development, which embodies human development constitutes, in itself, the formation of management capital. Furthermore, NRM in my denomination embodying management of both natural and human resources invariably and inevitably incorporates human and social development as a prerequisite and imperative constituent<sup>13</sup>.

### Capital Theory Perspective

The building of organized human capital, or the capitalization of human resources, is achieved by human resources development both in individual and collective fields. Human resources development in individual field relates to the formulation of human capital, the concept of which has been evolved and discussed in neoclassical economic theory. Meanwhile, human



**Figure 2(b). Structure of the Resource Management Model (RMM) in Development Perspective**

13 Such definition of natural resource management is crucially important especially in rural environment in the South, in which management agenda of natural resources inalienably involves human and development concerns. Too often natural resource management agendas such as protection, conservation and rehabilitation of natural resources on the one hand, and the human and social development concerns in rural area, on the other hand, are addressed and approached independently. My theorization of the RMM is an attempt to incorporate the conventional notions of 'natural resource management' and 'human and social development' into a new conception of 'resource management', which by definition addresses both concerns as mutually inextricable constituents. Such conception on resource management will be further reviewed and elaborated in relation to discussing concrete conceptualization of 'sustainability' in forest management.

resources development in collective field involves the formation of social capital to the extent it is a process of social organization of the local population, a function of which is to build up, as deemed necessary, the relations of network connected by a sense of reciprocity and trust among mutually alienated and isolated local populations<sup>14</sup>. Which means that management capital also entails discussions on capital theory.

## Human Capital

Capital can be conceived as a set of assets capable of generating future benefits. Neoclassical economic theory traditionally acknowledged physical capital — tools, machines, factory, roads and other productive means — as the only form of capital. Since the 1960s, however, the departure from such conventional thinking took place as human capital theory was born. Schultz and Becker were among the first neoclassical economists who regarded people as human capital. Schultz argued that although investment in human capital formulated by skills and knowledge contributed a great deal in the increase in national outputs, they were rarely studied and incorporated into national accounting (Schultz, 1961, 1971). Built on a parallel recognition, Becker tried to quantify the rates of return on investment by education and trainings in the formulation of human capital (Becker, 1964, 1975). In their perspective, education as an investment in people is seen as akin to capital investment (Stiglitz, 2000: 428).

The idea and theorization of management capital is consistent with these human capital theories. It first demands that human resources be recognized as human capital to be capitalized by the process of acquiring knowledge and skills. Yet, unlike considered an individual asset by conventional neoclassical economists, human capital in management capital context is regarded as a collective asset formulated and possessed by organized populations. It is a collective asset formulated by organized population through the process of social organization, rather than an individual asset built up and possessed by each individual. To this extent, it is akin to social capital defined and defended, as discussed in the following, by the majority of social capital theorists, who advocate the concept as an asset collectively possessed and shared among individuals<sup>15</sup>. To the effect the development and consolidation of human capital as a vital component of management capital involves social organization process, the advent of human capital nurtured

14 Unlike most traditional rural societies in Asian region, in the Brazilian Amazon for which I have conducted empirical analysis (Harago, 2002a, 2003a), after political demise of traditional indigenous societies by European colonial forces, the local populations were for a long period dominated economically and politically by regional bosses, “patrões”, in the development of commercial capitalism under patronage systems, which obliged the local populations to be mutually alienated without given a tradition and opportunity to develop a sociological community colligated by a web of reciprocal rights and obligations as usually seen in Asian rural societies.

15 To the extent human capital is considered an individual asset by conventional neoclassical economic theorists and that social capital a collective asset, it may seem possible that my defining “human capital”, or “organized human capital” as is frequently referred to in my thesis, can alternately be called “social capital”. Yet, the organized human resources are fundamentally a human capital, built up by social organization process, i.e., the process of building up social capital. Hence, the “organized human capital” emerges as the human resources are organized accumulating both human capital and social capital in human resource development.

from human resources requires not only education and learning as stressed in the classical human capital theory, but also social capital formulation as being advocated by social capital theorists.

## Social Capital

Social capital<sup>16</sup>, like human capital, is a deviation from classical concept of capital theory, and consists primarily of such fundamental components as; 1) trustworthiness, 2) networks, and 3) formal and informal rules and institutions (Ostrom and Ahn (eds.), 2003: xiv). The building of trustworthy social network among a given society members constitute the foundation of social capital (Lin, Cook, and Burt, 2001: viii).

Collective human resources development leading to the creation of a community for the local population relates also to the formulation of social capital founded by networks of relations accompanied by such values as reciprocity, norms and trust. This means that management capital, of which an organized human capital is a fundamental element, is constituted by the formulation of social capital, in addition to individual human resources development process. In fact, the development degree in the capitalization of human resources as an organized human capital depends not so much on the establishment of a social institution itself as the solid formation of social capital among the institution members. Norms, rules, disciplines and transparently shared trusts and information representing social capital critically influence the maturity of management capital, which in turn determines the consequences of NRM, to the extent any initiatives for management of natural resources involve collective actions.

Coleman first introduced the concept of social capital into sociological study, in which rational action embodied in social relationships within the family and the community was justified and examined by the use of this concept. In addition to knowledge and skills, the formation of human capital is realized by social capital, which can be identified by such determinants as obligations and expectations, information-flow capability of social structure, and norms accompanied by sanctions. He closely examined the relations of authority, trust and norms by defining them as social capital (Coleman, 1988, 1990)

Putnam on the other hand drew attention to correlation of the foundation and development of democratic governance with the notion of social capital. He demonstrated, based on a long-term research on the reform of Italian regional governments, that the civil society embodied by norms of reciprocity and networks of civic engagement led to successful employment of democratic reform and institutions. He pointed out collective institutions represented by unions, associations, cooperatives that were created horizontally among members enhanced such civic

16 It is a broad concept subject to varied interpretations and definitions. It normally entails within the definition such concepts as networks, relations, norms, reciprocity and trust. It can be defined as "the institutions and networks of relationships between people, and the associated norms and values," or "social networks and the associated norms of reciprocity and trust" (Grootaert and Bastelaer (ed.), 2002), or "networks together with shared norms, values and understandings that facilitate co-operation within or among groups" (OECD, 2001: 41). Bearing in mind the conventional usage of capital, it can also be defined as "investment in social relations with expected returns in the marketplace" (Lin, 2001: 19)

bonds, resulting in better institutional as well as economic performances. He contrasted the civic society formed in the North of Italy against the society in the South, and presented that the better social capital equipped in the North called for voluntary collaborative actions for shared interests, which in turn facilitated better physical and human capital (Putnam, 1993).

The above two pioneer theorists differed, however, in conceptualizing social capital. Coleman conceptualized social capital represented by social ties and networks as an asset principally mobilized by each actor of the society; just as the human capital has been conceived by neoclassic economists as an asset to be nurtured individually through the acquisition of knowledge and skills<sup>17</sup>. Based on such conception, he recognized the importance of social capital in the formation of human capital for each actor of society<sup>18</sup>. Meanwhile, Putnam conceptualized social capital as a collective asset possessed by society, and applied the concept in the context of aspiration and creation for desirable civic society as an element more important than human and physical capital. Building on such recognition, Putnam further applied the concept using voluminous statistics on historical trends in measuring and explaining the declining state of community organization in the United States (Putnam, 2000).

For Ostrom and Ahn, social capital is viewed as “an attribute of individuals and of their relationships that enhances their ability to solve collective-action problems,” which arise “when-ever individuals face alternative courses of actions between short-term self-regarding choices and one that, if followed by a large enough number of individuals in a group, benefits all. The problem is one of overcoming selfish incentives and achieving mutually beneficial cooperative ways of getting things done” (Ostrom and Ahn (eds.), 2003: xiv). Their conception of social capital, therefore, is of closer relevance in NRM where the situations of Tragedy of the Common (Hardin, 1968) are often projected requiring sensible collective actions.

According to Ostrom and Ahn, the fundamental function of conceptualizing social capital involves a concern over how collective action is achieved. The notion of social capital is conceptualized to identify and indicate a means realizing such collective action. The management capital theory assumes that the collective action towards resource management is achieved by an organized human capital, formulated by mobilizing human resources into social organization process. Which means that the organized human capital, as a key element of management capital, is developed by the process of social capital building among local populations.

In the management capital context, basic infrastructure such as school, health clinics and roads and the conditions bringing about livelihood development basically concern the procurement of physical capital. They also entail the development of human capital in the form of knowledge and skills to the extent necessary in the operation and administration of the physical capital concerned. Meanwhile, the component of human resource development directly relates to

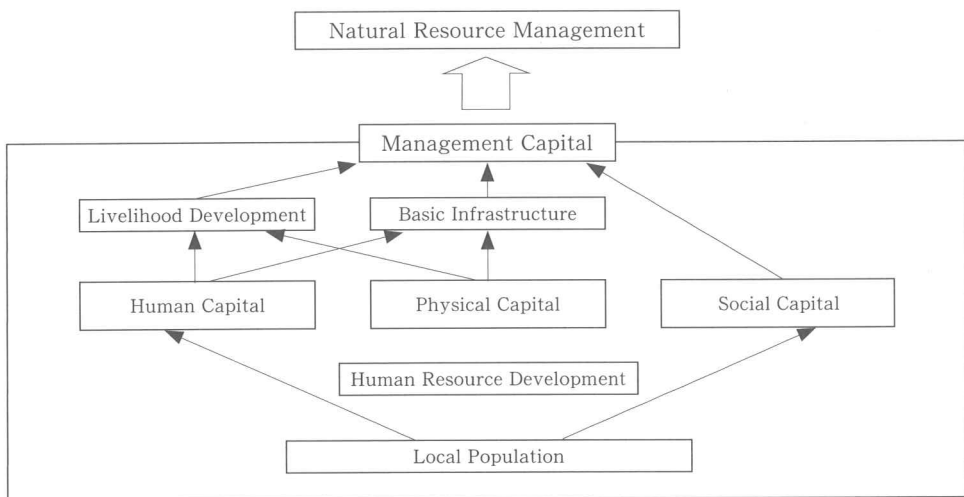
17 A vanguard of conceptualizing human capital, Becker also schemed social capital as an asset to be accrued for an individual, as shown in his recent works in the 1990s which applied the social capital theory to account for person's behaviors on choices and preferences (Becker, 1996).

18 Coleman, like Putnam, acknowledged that social capital is not lodged in individual but is embodied in *relations* among persons.

the nourishment of human capital and social capital. **Figure 2(c)** depicts a translated model of the RMM from these capitals perspective. It shows that management capital is comprised of the combination of physical, human and social capitals through intervention of the identified three constituents. While human resources development involves the formation of human and social capitals, the remaining two constituents are the derivatives of physical and human capital formations.

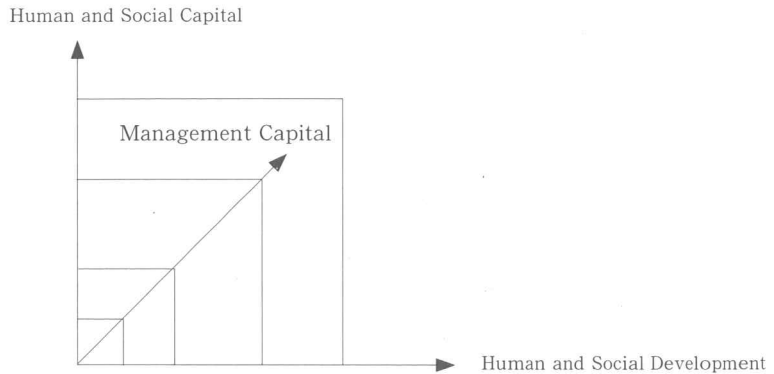
As shown in **Figures 2(b)** and **2(c)**, a formation of management capital will depend on the degree to which development is achieved and capital formulated. The general prospect will be that the more the human and social development is achieved, the better the chance is for sustainable NRM. The same will be true for the accumulation of human and social capital. These pre-suppositions lead to illustrate **Figure 3** on the nature of formulating management capital incorporating development and capital as determining variables. It shows both the fulfillment of human and social development and the development of human and social capital nourish the establishment of management capital<sup>19</sup>.

The achievement of human and social development and the accumulation of human and social capital may be interrelated, interactive and mutually complementary. Also the quantitative measurement in the development of these variables may be difficult, leaving an agenda for further studies. Nevertheless, I figure that the empirical studies and qualitative analysis of conventional approaches in NRM support the conception of management capital theory by



**Figure 2(c). Structure of a Resource Management Model (RMM) in Capital Perspective**

19 Social capital plays both positive and negative roles depending on objective settings. When it affects negatively to achieve certain objective, it is considered “bad” social capital, such as the relations of trust and reciprocal social network among, for example, drug traffickers. In resource management context as well, social capital is known to be able to undermine collaborative efforts when impenetrable barriers are established. For external agents willing to “participate” in local resource management initiatives, social capital is often viewed negatively (Jeffery and Viera, 2001: 12)



**Figure 3. The Development of a Management Capital**

which to organize the RMM on account of the following grounds. The management capital theory in NRM enables;

- 1) to recognize the fundamental importance of promoting human development and human capital formulation to establish a capital by which NRM actions/activities are derived as due fruits of capital investment<sup>20</sup>.
- 2) to incorporate human and social development and capital agenda as an imperative element in scheming NRM, overriding conventional NRM approach, in which local human resources have tended to play not a subject but mere an objective or collaborative role<sup>21</sup>,

20 Too often environmental conservation and restoration projects have been schemed and applied in the South through technical injections of mere, presumably necessary physical capital, with little or insufficient consideration and attention given to the due process of human and social development and/or the nourishment of human and social capital of the concerned region, with natural consequences of failures.

21 Such methodological as well as environmental ethical approach is akin to ecosystem management approach evolved in North America and other western countries such as Australia and New Zealand, where the local citizens are encouraged to play positive roles in forest management. The ecosystem management approach regards human society as part of ecosystem. In practical methodology, however, the importance and the role to play, for example, by indigenous populations and their indigenous forest use and knowledge in such continents where the concept has evolved, have not been a primary concern and interest. Natural ecosystem conservation primarily in national forest has been a primary application arena of the approach, for example in the United States.

In scheming the concept application in the forests in the South, however, it becomes even more important to include ethically, historically and culturally envisaged human perspective by which to regard the local, often indigenous, populations as a principal subject and actor in any natural resource management initiatives. Their dependence and subsistence on forest resources are direct and imminent to the extent that the traditional management techniques have constituted part of ecosystems (For example, Meggers, 1971; Anderson and Posey, 1985). The intricate relationship of human intervention on natural environment questions archaic dichotomies of natural landscape and human artifacts, as the entire system should be conceived as "agroecosystem" (Alcorn, 1990) often accompanied by the practice of "nomadic agriculture" (Posey, 1992). These considerations should apply in scheming ecosystem management approach in the forests of North America, Australia, New Zealand where indigenous populations have vested interests in management.

- 3) to identity and differentiate various activities/actions concerned with resource management, classified into those what constitute a capital and those derivatives to be naturally generated by the capital investment,
- 4) to monitor and evaluate appropriateness and effectiveness of a given NRM initiative by qualitative and quantitative applications of measurable variables, indices and parameters already established in development and capital theories.

Application of the RMM in Forest Management

Here I will focus on forest resources as a typical resource environment for which the RMM developed above will be applied. Management of forest resources, i.e., forest management, contains three basic components, as illustrated in **Figure 4**. The objective of forest management is defined to achieve sustainability of forest environment, where sustainability is articulated into three basic elements; such as 1) ecological sustainability, 2) economic sustainability, and 3) social

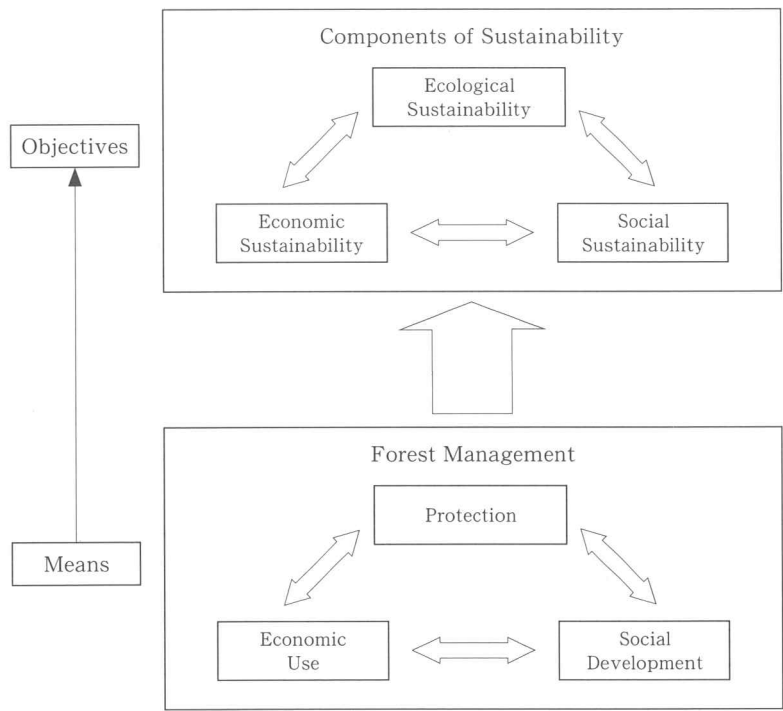


Figure 4. Components of Forest Management



sustainability<sup>22</sup>. To the extent each element is integral part of sustainability, a real sense of sustainability in a forest environment will be achieved when all of these three elements are pursued and satisfied. Furthermore, in the light of mutually connected nature on ecology, economy and society in the face of human interventions, it is conceived that these three elements are interdependent and inalienable, constituting a “trinity”. A trinity principle applies to the integral and inalienable nature of sustainability to the effect the satisfaction of any one of these elements depends on that of the remaining two elements. By the same token, the satisfaction of any of the two elements should facilitate to achieve the last remaining element.

Forest management can be defined as a means to achieve the above sustainability objective. Corresponding to each element of sustainability, forest management consists of three leading components, such as 1) protection, 2) economic use and 3) social development, each functioning as a means to achieve ecological, economic and social sustainability. To the effect the sustainability holds in a trinity nature among the three constituents, each means by which the sustainability objective is achieved also holds the principle. This means that protection, economic use and social development are mutually inalienable part of forest management, and a lack of any one of these elements fall short of attaining sustainability in forest management.

To the extent my defining “forest management” embodies social sustainability element the measurement of which involves social development, it exceeds conventional approach in its interpretation. First, as the notion is derived as a means to attaining the above sustainability objective, it naturally incorporates sustainability; i.e., “forest management” per se refers to “sustainable forest management”. Second, forest management, or sustainable forest management (SFM) in conventional terms, merely aims at sustainable management of forest ecology in addition to that of sustained production yield (Sakurai, 2003: 406). Which means that current usage and definition of the term usually covers ecological and economic sustainability — the two sustainability elements shown in **Figure 4**. Although social sustainability attained by an array of development elements are often considered in social and/or community forestry discussions, they do not advocate as far as social development element being constitutive to forest management concept itself.

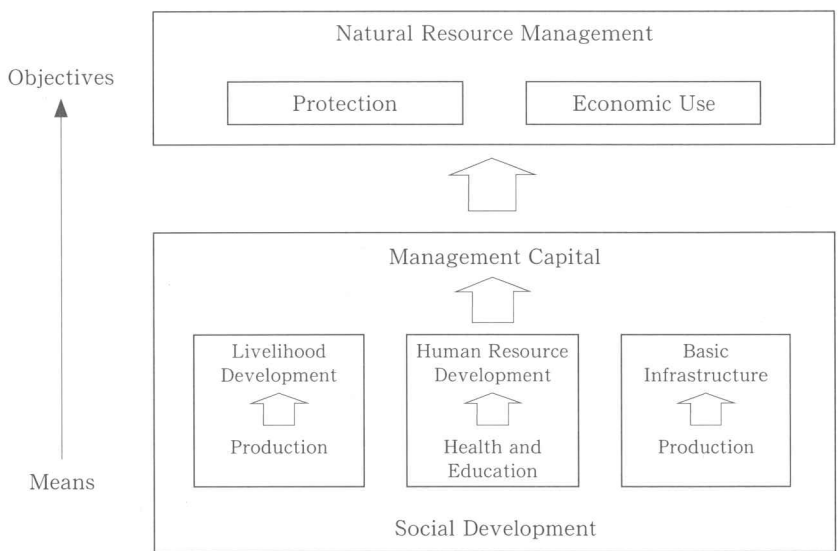
Another important corollary of my defining forest management as such lies in the fact that “forest management” by definition invariably denotes “community forest management” as an authentic forest management module to the effect it embodies, as a constituent, social development, which again embodies human resource development in which community awareness, organizing and actions constitute crucial elements. Such definition advocates that “forest management” in a true sense pursuing integral sustainability is never achieved but a form under

22 These three components of sustainability are widely used and accepted in differentiated but essentially identical formats (For tropical forest perspective, see Buschbacher (1990)). Wilcox (1999) conceived a socioecological system in conceptualizing sustainable development of a human-built system interacting with natural environment. He conceived three interdependent subsystems, such as 1) biophysical subsystem, 2) economic subsystem, and 3) sociocultural subsystem. A management regime constructed on ecological/biophysical environment intervened by these anthropogenic elements renders an ideological platform on recent ecosystem and landscape management approach.

community forest management. By definition it rules out from the denomination of “forest management” the direct management initiatives of natural and/or artificial forest by government agencies or private industries, unless social organization of local populations leading to social development is involved as a core element of management. Hence government or private initiatives lacking this local social organization element fall short of the definition itself of forest management, thereby on account of its proper definition, is prone to fail in achieving sustainability objectives<sup>23</sup>.

**Figure 5** shows the modification of the Resource Management Model (RMM) presented in **Figure 2(a)**, formulated by incorporating the three forest management components. First, the Figure shows that social development is achieved by three fundamental components denominated as; 1) health, 2) education and 3) production. Endogenous development of a local society naturally depends on physically as well as mentally nourished populations endowed with appropriate health and education services. Additionally, the sustainability of the local society also depends on a self-sustaining, autonomous production capacity doing away to the maximum extent with necessary inputs from external sources to sustain the local population concerned.

The Figure shows that the three fundamental elements constituting management capital —



Note: The arrowheads show a means-objective sequence.

**Figure 5. Modification of the Resource Management Model (RMM)**

<sup>23</sup> The consequence of my defining forest management incorporating social organization and collaborative action agenda as inalienable part naturally eliminates the term “community forest management” or “community forestry” as redundant, to the effect the concept invariably involves a community development process. Further in my definition as noted in the above, livelihood development is part of forest management concept itself, and does not constitute an objective to be pursued in tandem with forest management as often advocated (for example, Inoue, 2003: 163).

human resources development, livelihood development, and basic infrastructure — are achieved by these three social development components. Human resource development fundamentally involves a process of acquiring suitable health and education services. The realization of livelihood development and basic infrastructure depends on a robust production capacity, which guarantees local food security as well as cash-flow needs. The Figure illustrates that while social development process constitutes a principal means in the formulation of management capital, NRM is constituted both by protection and its economic use.

The Figure further suggests that, under the trinity sustainability principle, social development comprises a key agent in the achievement of NRM, as it activates management capital by which NRM is pursued. Furthermore, the configuration governing the means-objective sequence between management capital and NRM shows that protection and economic use could facilitate but do not necessary materialize local social development. Such finding may be coherent to many unsuccessful examples of environmental conservation or development project initiatives, in which activities merely aimed at protection and/or economic use of natural resources become unsustainable without bringing about social development.

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