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5. 結 論

上に指摘したような各章における内容的な問題点のほかにも、本論文全体に、なお改善されるべき技術的・形式的な問題点（訳語の不適切・不統一、冗漫な文体、誤記など）が数多く残っている。言うまでもなく、これらは今後の研究のなかで改善されなければならない。とはいえ、本論文が全体として、内外の膨大なヒューム関連の研究文献を消化した上で、明確な問題設定と分析視角によってヒューム文明社会像の豊かで複雑な全体像を提示することに成功していることに疑いの余地はない。本論文を博士（経済学）の学位を授与するにふさわしい業績と判定する所以である。

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チヨイ、イー ケエヨン君 学位授与報告

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内容の要旨

On 8th September 1993, the Malaysian government officially announced the approval of one of the most expensive mega-projects in the economic history in the country — the Bakun dam project. The project, which is the largest in Southeast Asia, involves a complete and irreversible destruction of 69,640 hectares of forest ecosystem as well as forceful displacement of the entire indigenous population (some 10,000 people) living the Bakun region. The construction of the project is estimated to cost approximately RM9 billion of the tax payers' money (RM=Ringgit Malaysia, US\$1=RM3.8).

Since then, the project has come under severe criticisms from the local and international NGOs, claiming it as socially destructive, environmentally unsustainable and economically misconceived. The Malaysian government, however, endorses it as one of the recipes in shaping the Malaysian economy towards achieving its long-term vision of growth — “Vision 2020”. Under this vision, it is expected that by 2020, Malaysia will become a developed country on par with the advanced nations in the West.

It is worth noting that the above conflicting views in conceptualizing development process in Malaysia reflect two polar cases of sustain-

ability criteria, namely, weak or Solow's sustainability (growth-centred development strategy) and strong or thermodynamic version of sustainability, (environmental - centred development strategy). While the Malaysian government is entirely geared towards the elaboration of the weak concept of sustainability to rationalize the Bakun project, the NGOs use the language of strong sustainability to question the logic of the monumental edifice.

However, it may be pointed out that while the criticisms of the contemporary critics are well conceived, they have inadvertently overlooked an important point that environmental priorities in the developing countries can be quite different from those of the industrialized world. While embracing the strong version of growth serves its purpose well to protect the environment, it may not be a welcome strategy insofar as it concerns the Third World region like Malaysia, where growth is much needed in accommodating the current pressing needs in mitigating acute poverty problem. So to speak, in the less developed nations, environmental degradations are seen in the context of society's development objectives that cannot be rectified simply by employing "conservation" practices. This is particularly true when the main issue confronting the developing countries especially those resource-based economies is: How resource exploitation contributes to development rather than how environmental preservation contributes to improvement in social welfare.

State differently, without development, nothing is sustainable. For one thing, sustainable development does not require us to preserve the environment for its own sake but, rather, it requires us to consider to what extent it must be preserved in order to bring about a sustainable mode of development that respects the unity between economic growth and socio-environmental sustainability. What

seems clear is that, the criticisms as lamented by the NGOs have failed to present a balanced debate on the sustainability perspective of the Bakun project, so much so that it has rendered their arguments disputable.

Furthermore, most of the Bakun researches are superficially compartmentalized in the sense that they are mostly geared towards the elaborations of a particular or specific dimension of the project, be it economic, social or environmental issue. These partial analyses have made their points of argument debatable because they have not been able to reflect the kinds of development policy that answer to the need of the Malaysian economy — economic growth, environmental quality and social sustainability. The Bakun strategy has indeed reached something of an impasse.

To break the impasse, it is recognized that analyzing the Bakun issue from any one of the above perspectives in isolation cannot serve as a proper guide to identify to what extent the project represents a sustainable mode of development. It must be evident that a complete and powerful form of analysis must involve an understanding of various dimensions governing the project. These includes, (i) its economic rationale, (ii) its economic efficiency vis-à-vis economic viability, and, (iii) its social and ecological impacts. Without embarking on this comprehensive approach to analyze the Bakun issue, any attempt to dismiss the project as fundamentally crisis-prone or morally and ecologically unsustainable is not only premature but, also, questionable.

In short, what is ultimately as issue underlying the Bakun mode of capitalism is not a mere search for a dominant and exploitative style of development which may be environmentally and socially destructive. Neither is the need to observe rigidly the ecological constraints of economic activity under the strong version of growth, which claims that irreversible environ-

mental destruction must be avoided. Rather, it is the study of how environmental degradation may be justified in the name of development.

Within this agenda, this dissertation represents an integrated and multidisciplinary approach to analyze to what extent the Bakun mode of capitalism represents a sustainable mode of development that respects the unity between economic growth and socio-environmental sustainability. It also represents a comprehensive attempt to move both the theory and practice of the Bakun issue beyond the impasse at which it is currently stalled. However, before proceeding to the core of the analysis, it is recognized that the current methodological challenges to sustainability debate between the above two conflicting schools of thought in relation to the Bakun issue must be explicitly cleared from the deck of their confusions.

Given this centrality, it is conceded that the term, "sustainable development" must be critically examined in order to come out with clear theoretical insights for the analysis of the Bakun project. This will serve to prepare the ground for proper methodological and theoretical procedures that transcend the highly rigid and compartmentalized scope or points of view of the two conflicting schools of sustainability as noted above. While the general framework of the dissertation is provided in Chapter One, the theoretical argument pertaining to the term "sustainable development" is critically scrutinized in Chapter Two. It is asserted that the core of sustainable development is not "to preserve this and preserve that" as pointed by Solow but, rather, to exploit environmental resource intelligibly, i.e. within its threshold level so that the domain of attraction or resilience of the ecosystem *as a whole* is maintained.

The above concept of development, which may be traced back to Holling's version of

sustainability, dictates that environmental destruction is permissible in the name of development, if the environment *as a whole*, when perturbed, is able to maintain its resilience, i.e. the capacity to cope, adapt or absorb shocks and stresses without changing in fundamental ways. In a resilient system, quality change of the environment has the potential to create opportunity for development, novelty and innovation. This concept of development is sometimes termed as "creative destruction". This methodological construct manifests itself as a remarkable *tour de force* to conceptualize and analyze the Bakun issue because, on the one hand, it recognizes that environmental destruction is necessarily an unavoidable process of economic development. On the other hand, however, it stops short of endorsing completely the weak version of development that, irreversible destruction of critical ecological assets is justified, if it creates a higher level of capital accumulation elsewhere in the economy. This line of approach to development sheds immense light to addressing the most important question underlying this dissertation: To what extent and under what conditions the Bakun project may be regarded as sustainable?

This takes us into a wide-ranging set of debates on the Bakun issue, which is critically and comprehensively analyzed in Chapter Four, based on the fact findings as expounded in Chapter Three. It is asserted that the real potential to achieve sustainability goals is not so much of whether environmental quality, social sustainability and economic rationality are compatible but, rather, to what extent they can be made compatible. Under this perspective, it becomes possible to explore the ways in which Bakun's strategy may be transformed into an engine of growth that harmonizes economic development with ecological sustainability and social justice.

Whilst it is tempting to suggest that the

most appropriate frame of analysis to deal with the above issue lies on the conventional costs and benefits framework (CBA), such a suggestion cannot be taken for granted. This is due to the reason that its theoretical construct cannot provide an adequate perception on the Bakun project in view of the various shortcomings it engender. For instance, the failure of CBA to take into account of the social and ecological impacts of the project, which cannot be captured by the price system, is an obvious case in point. Also, it is conceived that a project which is found to be economically efficient under the conventional CBA does not warrant the argument that it is also economically viable. What is being suggested here is that if the project is considered as economically efficient, further attempt must be initiated to verify whether it is also economically feasible. The debate over the Bakun controversial issue also requires us to review critically all those social or ecological phenomena, which either singly or simultaneously affect the character and quality of the natural and social environment in the Bakun region. This will enable us to determine whether the project is indeed ecologically sustainable and morally defensible.

The primary focus of the above points of investigation are taken up in Chapter Four where the Bakun issue is analyzed based on a "long view-wide view" CBA. This encompassing CBA framework is designed to analyze all costs and benefits, (tangible and intangible) that may affect the efficiency of the project. This necessarily covers the evaluation of the economic, environmental, and social dimensions of the project. The nature of the analysis also calls for the need to embark on a comparative empirical enquiry and examination of other options which may be more sustainable as compared the Bakun project in terms of their economic viability, environmental quality and social sustainability. The op-

tion that is considered under this dissertation is the Murum project, one of the potentially valuable dam projects in term of its generating capacity and socio-ecological sustainability.

It is concluded in Chapter Five that although the Murum project pales in comparison to the Bakun project in relation to its size and generating capacity, it nevertheless excels Bakun in terms of its relatively less destructive ecological forces and potentially harmful social impacts. Consequently, it serves its purpose well in averting an ever extreme form of capitalism under the Bakun scenario. It also serves its role well in harnessing the long-term vision of growth as embraced by the Malaysian government. It is further argued that to really progress sustainability objectives, it is necessary for Sarawak to venture into the development of Photovoltaic (PV) technology as a perpetuating motive force for economic modernism. It is pointed out that the backstop of PV technology serves not only to mitigate natural resource depletion, especially oil and natural gas exhaustion confronting the country but, also, help to secure an indefinite supply of green energy to service its long-term growth under Vision 2020. The sustainability perspective of the Bakun project is concluded in Chapter Five of this dissertation.

論文審査の要旨

Choy Yee Keong 君が博士學位請求のために提出した論文「Sustainable Development and the Malaysian Bakun Dam Development Strategy Revisited (持続可能な開発——マレーシア・バクンダムの開発戦略の再検討)」につき、さる3月22日、木村福成(主査)、大沼あゆみ、深海博明(以上副査)、瀬古美喜、細田衛士(以上学力確認担当)は審査会を開催し、論文提出者に対する口頭試問も含め、學位請求の適否について討議した。詳細にわたる審査の結果、本論文は慶応義塾大学大学院経済研究科において博士(経済学)を授与するに十分値するとの結論を得た。以

下、論文の概要を紹介し、審査における主たる検討内容を要約する。

本論文は、現代の環境経済学における複数の持続可能性概念に立脚し、東マレーシアのサラワク州で建設が予定されているバクンダムをケースとして取り上げ、総合的かつ包括的な評価を試みることを通じて、開発と環境の両面に配慮した新しいプロジェクト評価の手法を提示したものである。

当ダムの建設計画は、経済成長促進のため安価な電力供給の能力拡大が必要であるとのマレーシア政府の方針に従い、1993年に策定された。政府は、このダム計画を電力集約型産業育成のための呼び水と位置付ける一方、現地経済への波及効果、技術移転、電力輸出なども期待でき、現地住民の生活向上にも役立つものと主張した。しかし、ダム建設反対派のNGOは、ダム建設を広範な環境破壊をもたらすものと非難し、バクン地域で生活している約10,000人の現地住民が立ち退きを余儀なくされること、彼らの社会構造に大きな亀裂を生じさせる恐れがあることを指摘した。同様の開発プロジェクトをめぐる議論は世界各地で巻き起こっており、環境経済学はこのような問題をいかに分析していきうのか、あるいは現実の紛争解決にいかに関与しうるのが問われている。

本論文では、この問題にアプローチする視座を明確にするため、まず維持可能性概念の整理を行っている。ここでは、新古典派の功利主義的思想を反映した「弱い持続可能性（ソロー持続可能性）」、そしてそれとは対照的な立場である熱力学を基礎とする「強い持続可能性」を検討し、さらにそれらの中間に位置して経済開発と環境保全の共存を模索する「ホリング持続可能性」の妥当性を議論している。これらの異なる持続可能性概念を用いるとかなり異なった結論が導かれるわけであるが、それらに対比させながらプロジェクトを評価していくところが本論文の新しいところである。

プロジェクト評価にあたって用いた情報は極めて多岐に渡る。従来の費用便益分析にとどまらず、経済、環境、社会の要素も考慮し、また現地調査によって得た生の情報も有効に用いている。経済面については、特に電力需給、輸出可能性が検討されている。環境面については、野生動植物や河川の資源環境への影響、二酸化炭素排出、貯水湖の土砂堆積や水質汚濁、景観の環境的・文化的価値などが、包括的に考察されている。社会面については、近隣の現地住民への社会的影響が

議論されている。近隣に位置しながらバクンダムよりも小型のプロジェクトであるムルンダムとの対比も試みており、分析結果に説得力を増すものとなっている。これらの検討を踏まえ、バクンダム計画は十分に正当化されるものでないことが説得力をもって結論づけられている。以上のような方法論の有効性をケースを通じて示したところが、本論文の最大の貢献である。

もちろん、専門論文としてやや難のある部分が残っていないわけではない。たとえば、第2章において提示されている理論枠組みと後半のバクンダムのケースの適否を検討する基準との接合が必ずしも明示的となっていない。第4章のモデル展開における複数の「自然資本」の取り扱いについても、改善の余地がある。また、ダム自体のもたらす環境へのインパクトについても、さらに踏み込んで評価することが可能であるかも知れない。さらに、論文に関する口頭試問の際の受け答えが必ずしも簡潔かつ明解なものばかりでなかったことも指摘しておく。しかしこれらは基本的に細かな問題で、著者の今後の研究活動の中で十分修正可能なものであり、したがって論文全体の評価を大幅に減ずるものではないと判断した。

論文全体の問題意識および分析の切り口が現代の環境経済学の研究課題と整合性を有するものであることは、本論文の内容を踏まえて査読付きジャーナルに投稿した複数の論文が掲載可と判定されたことが証明している。

以上の理由により、上述の通り、審査委員会は全員一致して、当論文が博士（経済学）授与に十分値するものであるとの結論を得た。

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