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THE NEED FOR A NEW DEFINITION OF SUSTAINABILITY

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ABSTRACT

The present definition and scope of sustainability are reviewed by highlighting its various weaknesses including those that have been mentioned by Western scholars in development economics, ecological economics, environmental economics, and envirometrics. The emergence of a new field in the 1990's, misleadingly named as eco-nomics, was to replace general economics. The presence of many forms of economics with new paradigms are purposely designed to improve development economics and at the same time to discuss and cope with the problems of sustainability. Our study on the nature and scope of sustainability was based on the history of the Malayonesian[1] civilization and Islam, and practices of the present globalism. It has shown that not only is there a need to include an exhaustive environmental aspect (more than just the homo oeconomicus, flora and fauna) and a wider quantitative aspect (not just only statistics as well as other elements of mathematical science) but also to consider much more basic and important in the definition of sustainability. In this regard, we criticize the present mathematics used to measure sustainability. Other important aspects are the dimensions of knowledge and religion (with the emphasis on the importance of happiness) which we reclassify as two important components of culture which form our main focus of this paper. Examples of these new and classical elements of sustainability are partly based on our study inspired by relevant Malay inscriptions and manuscripts of direct and indirect effort of those in power and scholars of sustainability during the pre-Islamic and Islamic era of the Malayonesian civilization. In other words, our new definition of sustainability is proposed in order to improve the present definition and therefore involves the issue of interaction between beings, cultures and religions, together with a comprehensive value-laden mathematical science.

Keywords: *Critique on economic development, critique on contemporary sustainability concept, new definition of sustainability, past Malayonesian knowledge on sustainability*

[1] Malayonesia is the region in Southeast Asia coined by British ethnographer in 1860s to denote that the *lingua franca* of the region is Malay.

INTRODUCTION

The first well known definition of "sustainability" is proposed 1987 by a United Nation (UN) commission (WCED, 1987). According to the etymological dictionary of the English language (Internet ED), the term *sustainability* emerged in the socioeconomic context only during the 1970s, although the expression *sustainable growth* appeared even earlier, that is, in the 1960's. In Malaysia, and as far as could be recalled and observed by the authors, issues related to sustainability were first debated among development sociologists in Universiti Kebangsaan Malaysia (UKM) at the end of the 1980s. That may be considered the most probable year when the term was first used in Malaysia. There is the possibility that this matter came about due to the impression created by the Brundtland Report in 1987 (WCED, 1987) submitted by a commission under Willy Brandt that was established by the United Nations (UN) in 1977.

Without doubt, environmental and ecological issues have become major issues on sustainability. These two areas are very critical in economics as they are viewed as the source of environmental and ecological problems that affect lives of people everywhere. The term "sustainability development" has become the primary focus of the Brundtland Report but the report and proposals of the UN on this matter had drawn even stronger criticism and almost succeeded in equating development economics as one in direct conflict with sustainability, or in short the combination of these two contradictory terms, sustainability development, an oxymoron. Literature on this matter are plenty (Singer, 2010).

Economics, as a field of study, has long been considered to have failed in handling issues related to sustainability. The emergence of terms like environmental economics and ecological economics in general, and the knowledge generated based on *eco*-nomy as suggested by (Postel, 1990) in particular were supposed to take over the traditional role of economics. Until now, the status of ecology and environment are said to be necessary conditions for achieving sustainability. Therefore, whatever is meant by the term "sustainability" is becoming more serious and critical. Why it failed and what is the root cause of this failure were posed by Western scholars to date. Do the definitions of sustainability, especially those sponsored by UN and hence supposed to be the most influential, can be regarded as improvements to the original definitions and yet contribute to the failure mentioned above?

These are the two issues that have become the main topics of discussion in this paper. Some of the answers to these questions have already been discussed in Shaharir (2012), where it is shown that in terms of etymology of the Malay language, *lestari* (sustain), *terlestarikan* (sustainable), and *keterlestarian* (sustainability) cover a breadth of knowledge which is more than the sustainability that we have inherited from the West over the years. In this paper, the faulty definition of this area is now seen from the perspectives of Western scholars' criticisms on the weaknesses of the theory of sustainability to date and the emergence of the theory and practice of sustainability in the pre-Islamic and Islamic era of the Malayonesian(1) civilization.

THE REASON FOR THE FAILURE OF THE THEORY AND IMPLEMENTATION OF SUSTAINABILITY POLICY

Western historians pointed out the "facts" regarding the fall or destruction of a great empire, which was interpreted by scholars in the field of sustainability science also as sources of unsustainability. One of them is the **extreme exploitation of natural resources**, as happened in the Mesopotamian, Mayan and the Roman empires. Agricultural systems were largely destroyed by severe degradation of land due to over-irrigation, flooding, and the increase in the salinity of the water (Hardesty, 2001). Initially, the West managed to survive this **excess factor** and sustain it through their

colonial policy from the 16th to the 20th century to the extent that they could carry on with this **culture of excessive extravagance**. In a way, high population growth, excessive tax, rebellions and wars had all contributed to unsustainable governments in the past. That was the opinion of most historians in the West.

After a few decades of excessive extravagance, leaders in the West might have been made to realize the problems of unsustainability by scholars in the field of sustainability. However, taking into consideration rebellions and wars in the former colonies as factors which were politically manipulated by the West, the culture of excessive extravagance continued.

Furthermore, one more sustainability factor that needs to be highlighted and proven by the author here is the appreciation of secularism, areligiousity, or anti-religion of the Western society that has spread or infected the rest of the world in general which has resulted in the neglect of religious values (manners/ethics/virtue or normative approaches) or ignored such values in building in and formulation of sustainability policy (except lately and will be discussed later). There is little wonder that these have affected the definitions and construction of a theory of sustainability in the West, as well as criticisms to date. Western concept of sustainability to date has been criticized for overemphasizing ecological and environmental issues under its control at the expense of neglecting of humanitarian issues, especially the spiritual and psychological issues. They have overemphasized human materialistic needs which are unimportant (misguided or incorrectly assumed).

The extent at which the West was so strongly against religion on matters relating to sustainability could be seen from the topic of the **first debate** which is now branded as the issue of environmental sustainability based on opinions (White, 1967) that hit hard at the Christian doctrine that says that this religion educates its followers to be arrogant against the natural world and that this is the root cause of the environmental crisis which has lasted until this century as could be seen with refutation (Gore, 1993), and reconciliation (Gottlieb, 1996; Daly, 1996; Gardner, 2003; Sideris, 2007; White, 2010).

The second debate on sustainability was considered to have occurred in the 1970's till now. It is also about the issue of economic growth (the limits to growth by (Meadows, *et al.*, 1972, 1992, and 2002), and all at once assuming "optimum growth" as the best policy and plan as well as sustainability as the result of ideas put forward by mathematical economists (Ramsay, 1928), through the control model in economic planning. Its current status can be best understood by referring to (Islam, 2001) and Farzin, 2010). In the discussion about third edition of the limits to growth, the possible scenario of sustainability is the absence of population growth and industrial output that is not only not observable but is said to have many questionable assumptions and the lack of a visible narrowing gap between economy and environment (Bartelmus, 2008). Yet (Smorch, 2010) still believes that optimization and sustainability is "a winning combination". We come back to this issue later in a separate section of this paper.

The third debate is closer to sustainability, which has not ended till today, is between the proponents of ecological-environment versus the proponents of liberalists/neoliberalists about what is now known as EKC Hypothesis (Environment Kuznets Curve Hypothesis). This is about a graph showing the relationship between pollution and happiness which is in a quadratic form, that is, pollution will decrease when a certain level of happiness (in terms of income) is achieved and will either increase or stagnant after that level; or in cubic form having a maximum and a minimum points, that is, pollution decreases in one income interval only but before and after that pollution continues to rise. This hypothesis was published by (Kuznets, 1955), and studies have been con-

ducted several times as highlighted by (Bartelmus, 2008). It would be more controversial if prosperity is replaced with happiness and this matter would be discussed later. If this issue is brought to Malaysia, the scenario would be worse off than it would seem, that is, it looks like the level of income has no correlation with the habits of environmental and ecological protection or awareness.

The fourth debate is about economy versus environment-ecology. This is about environmental pollution and economic growth. Kapp (1950) is considered to be the first scholar to warn about the damage to the environment caused by economic growth; and he is followed by (Mishan, 1967). There are many more who are concerned about sustainability, such as (Hughes &Thirgood, 1982 and Redman, 1999), armed with quantitative and qualitative evidence, they are of the view that the knowledge of economics and development is less concerned about or has ignored the environment. Postel (1999) has even suggested the term *eco*-nomics, to replace the present science of economics so that the subject becomes wider so that it extends "beyond the market place, resolved to speak about a rare environmental service not marketed." Until today, Postel has not been able to achieve his dream, but since then many economic terms are given the affix eco- such as eco-development, eco-home, eco-tourism, eco-efficiency, eco-balance, eco-compensation, eco-dictatorship, eco-tax, eco-techniques, etc., and many of them are not popular and have disappeared just like the once popular eco-development (Sachs, 1976, 1980). Moreover, the term *eco*-nomics itself is not a popular term; and in fact as far as we know there is only a book by (Bartelmus, 2008), and a handful of other papers, but only one of them, (Singer, 2010), is relevant to our discourse here, used this term even though the many issues that have drawn our attention to this term *eco*-nomics are still popular to date.

The difference between ecological economists and environmental economists in traditional economics *vis-à-vis* sustainability is that the first group does not believe in economics at all (the traditional one); and as a result they have wanted **to minimize the environmental impact** of all human activities only while the latter believed in traditional economics but with a high ecological awareness. That is the reason for the emergence of expressions like sustainable economy, sustainable ecology, and sustainable economic growth.

Meanwhile views of others like (Beckerman, 1994, 1992) who assumed that sustainable development, whether morally said to be disgusting (obstructing the economic growth of Poor Countries for the sake of the unseen importance of the future generations), or logically wasteful or extravagant (accommodated by welfare economics), represent many in the pro-development group. This has also reinforced the stance of ecological and environmental economists against traditional economics.

The fifth debate is about global warming between the proponents of reductionism and holism. Over the past few years, the environmentalists viewed global warming as the biggest threat to human survival (and hence sustainability). In response, the environmentalists truly appreciate the philosophy of reductionist while the issue of economic growth was relegated to sustained economic growth, environmentally sustained growth, climate change (leading to global warming) and finally reduced to economic growth with controlled CO_2 emission. For the holistic-minded approach, this approach is deemed untrue and will not be able to solve the problems of environmental sustainability. Moreover, according to (Bartelmus, 2008), they actually believed in or agreed with the thinking of EKC (Environmental Kuznets Curve). They have overlooked the fact/reality that: (1) Rich Countries achieved the desired state by

exhausting the resources of Poor/Developing Countries, and polluting the countries (the continuation of the colonial occupation), (2) Rich Countries do not care much about the "pollution of poverty", that is, poverty itself and the environmental impacts (natural disasters, shortages of physiological needs, pollution, deforestation, declining soil fertility and infectious diseases/epidemics), (3) service and ICT require the input and a huge quantities of material and infrastructure, and (4) the risk of new technology (genetic and nanotechnology) and old energy (nuclear) is increasing in terms of their dangers.

The sixth debate is about the issue of human nature. The current definition of sustainability must include the meaning of "development" (in part because of its still popular oxymoronic expression, sustainable development) and the meaning of "human needs" (based on a humanistic theory like Maslow's theory, etc.). Bartelmus (1980, 2008), equated "human needs" as a matter of "human welfare" in a development program and then listed the goals of human welfare. This is a change to a problem of "human welfare" only. His definition of "welfare" is based on the purpose or objective of living which could be grouped into primary and secondary purposes. He then obtained 10 primary objectives, namely, affection, recreation, education, freedom/security, place to rest, aesthetic/cultural values, equity, health, physiological needs and quality of life in the future. The 16 secondary objectives include food and water, housing, work, nation building and eternal/conservation of the environment. Interestingly, apart from the sense that there are items in the primary objectives list that should be in the list of secondary objectives and, vice versa, cultural and spiritual/religious aspects were not in the list. Another more basic matter is the question of the choice of "human welfare"(which can be confused with the term "welfare" in "welfare economics"), and not a question of "happiness" which is far more meaningful and often mentioned of late, other than interest in the Islamic tradition and Malayonesian civilization that would be discussed later, **happiness. It is possible that Bartelmus was still committed to the paradigm of sustainability in economic development endorsed by the UN. Moreover, the list of MDG under the sponsorship of UN 2005 consisted of the eight developmental goals which did not have any cultural and spiritual/religious dimensions because of the increased focus on physiological needs.** They seems to disregard the importance of religious values in sustainability even though (Cairns, 2002) and others had proposed the need for "sacred values" in defining sustainability as discussed further in section 3 of this article.

The last debate to be mentioned here is about development versus non development. Funtowicz & Ravetz (1991) and (Daly, 1996), representing ecological economists and environmentalists, criticized "economy" as something not relevant to sustainability, and in fact (Daly, 1996) opined that sustainable development is achieved in a mature economy/ steady state (zero growth) only, that is, no growth.

Perhaps at **the height of any failure related to sustainability** *vis-a-vis* development to date is a series of UN-initiated evaluation of the issue. The suggestions made by UN agencies responsible for the achievement of sustainability such as UNEP (United Nations Environment Programme) in 1983, WCED (World Commission Development and Environment) in 1987, UNCED (United Nations Conference on Environment and Development) in 1992, the Earth Summit in Rio de Janeiro in 1994, WSSD (World Summit on Sustainable Development) in Johannesburg in 2002, are now commonly considered failed plans/proposals/initiatives, and was admitted in the latest UNMDG (United Nations Millennium Development Goals) 2005 (Bartelmus, 2008).

SEVERAL RELATIVELY NEW INITIATIVES POINTING TOWARDS NEW THEORISTS

In the 1997 Amsterdam Agreement, the concept of development in the constitution of the European Union was changed from "sustainable development" to "sustainable and balanced development" (Bartelemus, 2008: 49). Perhaps the term "balanced" was not clearly and practically defined. The term "balanced" was proposed to reflect a new desire to replace the term "optimum" that had long been enshrined in sustainability theory and heavily criticized. The weaknesses of optimal mathematics will be discussed in section 4 of this paper.

The environmentalists stress that malaise in sustainability is currently rooted in the efforts without fear of the economists and policy makers to achieve a level of economic growth and happiness (= income) even though the truth lies in the fact that wealth does not necessarily make a person happy (see below). On the other hand, simplicity/sufficiency/adequacy and caution would lead one to a 'good life'. Furthermore, (Duesenberry, 1949) hypothesized that the standard of living or relative living standard is more meaningful to most people compared to the increase in income. In other words, a **country's policy aiming at high-income status is very much in contradiction with human needs and sustainability**. Actually, quite a number of ecological economists were aware of this in the 1990's, some are listed by (Bartelmus, 2008) to the extent that sufficiency is the best life principle that is in line with sustainability. The term "sufficiency" is redefined as moderation and then the later is translated into Malaysian Malay as *kepertengahan/kesederhanaan/ moderasi* and since a few years ago the Malaysian government has been popularised the Arabic word, *wasaṭiyyah* or simply *wasatiyah,* although one of the authors of this paper have long referred to it as *wustdo, wusṭa* or simply *wusta* in his new mathematics of *wustaization* (moderation) to replace the mathematics of the extreme concept of optimization discussed in section 4 of this paper. Daly & Farley (2004) said that this change in value is 'qualitative development' while (Hamilton, 2004) named this society of 'qualitative development' as a 'post-growth society', but of course we would called it as *wustaised* development.

The issue of happiness as an objective of life is not something new in Islamic Civilization and even pre-Islamic Malayonesian Civilization (discussed in a separate section below). In the West, this would have been acceptable (but not to the economists) since the 18th century AD at least. For instance, in the U.S. Declaration of Independence in mid-1776 which states, inter alia, one's right to happiness (Bartelmus, 2008). This is the earliest recognition in the U.S. (and probably representing the West in general) about happiness as an objective of "development" for an individual, group, institution and country. In fact, happiness was an important matter in the socio-political movement in Italy during the 18th century AD in the name of "Neapolitan School of Civil Economics", even though the concept of happiness is manifested in the concept of functional utility (Bruni, 2006). Happiness has begun to be used in election campaign in the latest general elections in the UK (as reported).

The study of the happiness factor is becoming increasingly well-received. Studies in the U.S. show very little change in its happiness level in the 20th century. Easterlin (1974) raised the paradox of economic growth *vis-à-vis* happiness that after a certain level of economic and income growth, "national happiness" remains static. This has raised the concept of "happiness threshold hypothesis". Max-Neef (1995) shows that "happiness threshold hypothesis" decreases as welfare or quality of life increases in the Rich Countries, and Expanding Economies. To the question: "Are you happier now than 40 or 50 years ago?" Almost all of the respondents in the U.S.

said "no" (Hamilton, 2004). A recent study shows that income per capita GDP of USD 16 thousand is the threshold of happiness (after which happiness of an individual does not change anymore). But the studies in countries like Bhutan and Costa Rica show that the people there are happier than those in the UK, US and Japan (except Switzerland and Denmark); Cubans in Cuba and Chinese in China; millionaires are as happy as Amish in the U.S. and Inuit in Greenland, and about the same with the Masai in Africa, who are happier than individuals in Sweden. Question formulated to obtain this information is “Are you satisfied with your life now?” (Diener & Seligman, 2004).

Unfortunately, socio-economic planning of a country so far has yet to be committed to "happiness" despite the increasing awareness among socio-economic scholars about this after having seen the failure in economic development, welfare economics and many other such paradigms that have been discussed by (Shaharir, 2008) and Alinor, 2011), even though the biggest initiatives in this direction in the name of sustainability were implemented since 1980's. The main reason is that all this while the UN and its latest initiative under MDM (Bartelmus, 2008) clearly has not accepted this economics of happiness. Of course, the concept of Welfare State such as the well-known ones like in the Scandinavian does (based on the data above) not approach towards happiness, although with reference to the socio-economic indices other than indices of happiness, they are better off than the other countries in the world (Shaharir, 2008).

The scholar who is most concerned about ecology and environment is (Naess, 1976), to the extent of making assuming similarity in the status of all living species and as such should be accorded with due respect and treatment. This assumption is known as the Gaia hypothesis which is considered to have deviated from Western culture due to its somewhat religious flavour and is not widely accepted to date. In Islam, this assumption is considered to be quite contradictory to its teachings as man is the best of all creations and hence should not equate them as the same as non-human species. The fate of Naess is similar to that of (Gowdy, 1994) when he introduced the concept of normative economics which saw the emergence of a new field of study known as co-evolutionary economics that links community values and evolutionary-ecological ideas without being colonized by traditional economics. However, by reason of economics being religion flavoured, the response does not meet the expectation of its originator.

Indeed, many would disagree with or criticize the definition of sustainability in the Brandtland Report (1987), as follows,

> "A development meets the needs of the present without compromising the needs of future generations to meet their own needs."

Those who are not satisfied with the definition of the Brandtland Report have come up with their own individual definitions, thus giving rise to the many definitions of sustainability (see for example Sideris, 2007; Kates, *et al*., 2005; Kajikawa, 2005; Hopwood, *et al*., 2005; Jerneck, *et al*., 2011), but it is evident that none can replace the popularity of the definition in the Brandtland Report because of similarity in essence or not practical or operational. Moreover, as mentioned in (Tonn, 2007), we find that a definition of sustainability which includes "balance in socio-economic and environmental factors" are still lacking even in those later references. Hence, (Bartelmus, 1994, 2008) has given his new definition of sustainability which appears to be able to reduce the gap in the definitions of sustainability compared with that in the definition of the Brandtland Report, focusing on goals to be achieved and therefore more practical. The definition is;

> "The set of development programs that meets the targets of human needs satisfaction without violating long-term natural resources

capacities and standards of environmental quality and social equity."

However this definition includes one more vague term, that is, "human satisfaction", in comparison with the definition in the 1987 Brandtland Report. Looking at the list of human needs in (Bartelmus, 2008), there is no clear difference in terms of the same needs in the 1987 Brandtland Report. He further argued that sustainable development necessarily requires a person to pursue economic and non-economic societal concerns through a combination of policies even he himself has not been able to formulate.

WEAKNESSES IN THE ELEMENTS OF MATHEMATICAL SCIENCE IN SUSTAINABILITY

Mathematical elements commonly observed in the study of sustainability are mathematical optimization (the understanding of the concept of "the best" or "as good as possible" which has not been questioned in any decision-making, including sustainability planning) and statistics (as a research tool about the level of sustainability and correlation between matters considered to be factors of sustainability). With regard to the weakness in mathematical optimization, it would be discussed after this because we would like to focus on statistics here.

Statistics in the study of sustainability is wide-ranging and since the 1970's has attracted the attention of many to the extent that new areas of statistics have emerged, such as environmental statistics or envirometrics for sustainability. This field was designed with the aim of assessing the biophysical world which has all this while been ignored or neglected in the usual human-centred economic and socio-statistics and econometrics. What has been ignored? Statistics based on ecology and environment has obviously been ignored. However, envirometrics has been proven to be unable to assess the interactions between or the result of environment and socio-economic activities due to reasons of non-sustainability. Many are dissatisfied with conventional statistics found lacking in its response to policy and evaluation.

Development index (GDP) and welfare development index (WDI) remain a benchmark for the achievement of a development project even though the indices were proven irrelevant to the extent of distorting sustainability as discussed in the previous section, or using sustainability measurements that are far more meaningful (Shaharir, 2008; Alinor, 2011), especially happiness, even though this best index could be supported by a good theory of happiness that is still non-existent.

The popular statistical indices of sustainability are the indices or indicators accepted by the UN. There are four indices that measure sustainability: ecological footprint/EF, which has 6 indicators, ESI (environmental sustainability index) which has 20 indicators, SDI (sustainable development index) which has 14 indicators & WI (well-being index) which has 87 indicators (36 human, 51 ecosystem). WI and SDI are similar in Rich Countries but erratic in Poor Countries. However, no country is near sustainable (Sustainability Now, 2006). The equate sustainable development = good life = high WI level.The result of EF (abundance of land and water capable of producing the much needed resources to consume and assimilate the waste generated with current technology) indicating that in future ecological deficit is more than 1 acre per person (Venetoulis, *et al*., 2004).There are many criticisms against EF as described by (Bartelmus, 2008). All the indices are not able to capture the concept of sustainability no matter how clearly defined.

Another sustainability index formulated is one based on the first and second laws of thermodynamics which states that energy and mass cannot be created or destroyed. This is used to open an energy and mass account of a country to know immediately its level of sustainability. The problem is that current theo-

retical physicists opine that 95% of the energy and mass in the universe cannot be understood or considered to be "dark" (and hence termed as "dark energy" and "dark matter"). With such "facts", this law has to be altered to accommodate the fact that 5% of the energy and mass cannot be destroyed or created! Even that is not quite right since according to the teachings of Islam the universe is originally empty/has nothing (*ex-nihilio* or *la 'adm* or *la sya'in*), and this has been gaining the support of physicists in the West as well. The second law of thermodynamics states that as entropy increases, chaos increases or becoming less useful. This is exactly what has initiated the Western classical economists' axiom of "limited resources and unlimited human needs" and the human *oeconomicus* accounts of energy resources termed as external energy or mass energy; while Islamic economics insists otherwise "unlimited resource/ sustenance and limited human needs" (Shaharir, 2011).

One other mathematical element in sustainability is based more on the optimal policy as the best policy to achieve sustainability. Shaharir (2003, 2006) described the optimum concept as an interpretation of an extreme, "the best" or "as good as possible" situation, based on a performance measurement to have achieved the best score or the lowest score. This is excessive extremity. Islam teaches that the best is *wustdo* (usually translated as moderation, middle path, middle, balance, fair and so on; the Malaysian government popularize its derivative *wasatdiyyaht*) and this is also in accordance with the Malayonesian culture (a Malay proverbs), "*buat baik berpada-pada*" which means sufficiency is the best. *Wustdo* is the best policy and internalized by great leaders in Malayonesia (the Malay Archipelago, the Malay world, or *Pascabima*, the last is a creation of one of the writers a few years ago). Scholars are not comfortable with the nature of economic optimization which ignores the entire humanity which could also be seen in the view of (Faber, *et al*., 2002), which argues that maximization of the utility of *homo oeconomicus* has the same value as the worthlessness of *homo sapiens*. Some of these *homo sapiens* are *homo politicus* seeking justice, freedom, and happiness. Examples of this line of thought emerged much earlier (Galbraith, 1986) criticizing the entire basic tenets of neoclassical economics, the "optimal resource usage under ideal mystical market conditions".

The followings are concrete examples of sustainability in the old Malayonesian civilisation which we believe could be suitably selected and adopted in the presence concept of sustainability which will propose at then end of this paper.

THE HISTORY OF THE CONCEPT AND POLICY OF SUSTAINABILITY IN THE *MALAYONESIAN* CIVILIZATION UNTIL THE 17TH CENTURY AD

In this section, we would like to quote from our previous essay (Shaharir & Alinor, 2011).

Sustainability of the Sriwijaya-Malayapura Leadership in the 7th Century AD.

An ancient Malay inscription (stone inscription in the Malay language, but using the Palawa alphabets) found in Talang Tuwo, Palembang, in 1920 dated Saka 606 (equivalent to 684 AD) contains many materials that should appeal to many. It is only recently that we realized that there is just one thing written on the inscription related to sustainability (Coedes & Dumais, 1992; Noriah, 1999). On the inscription, the presence of a *raja* (considered to be the king of Sriwijaya, but could be the king of Malayapura, a Malay (English)/ Malayuir (Spanish)/Malaiur (Portuguese) government that existed earlier than the government Sriwijaya) known as Sri Jayanasa built a *parlak* (a kind of botanical garden) and it was given the name *Sriksetra.* The king ruled that various kinds of trees were to be planted in the *parlak*, including "all kinds of edible fruit

trees" (in the original entry, *samisrana yam kayu nimakan wuahn(y)a*), besides, "all kinds of fruit trees" (the original term, *mancak muah*), and water ponds and dams were provided (for drinking, bathing etc.) to cater for the needs of all those who were "on the way and feeling thirsty and hungry" to relax there. The presence of a rest house and temple there are not mentioned, but based on the purpose of the *parlak,* there was the possibility of the existence of such buildings. Moreover, it was even recorded that the *parlak* was built specifically for "all moving and stationary people and creatures (the original term, *sarwasatwa sacaracara*) who obtained the level of joy (original term, *sukha*)."

In terms of modern terminology, *parlak* is (simultaneously) the oldest royal botanical gardens, royal zoo, and royal eco-tourism in the region, if not the first one in the world. Thus, this is unusual sustainability planning not done in modern times, even though the current modern term close to it is sustainable ecological or environmental strategy. Perhaps *parlak* should be considered a sustainability strategy as well as an ecological-environmental initiative, as a means to achieve some kind of human happiness, that is, enjoyment.

Sri Jayanasa was very concerned about the spirit and knowledge of sustainability. In fact, according to Coedes & Damais (1992), written on the inscription, the king of Jayanasa definitely hoped that all the people were living in idyllic condition or to borrow the original term *subahagia* (from its original literary translation in the inscription, *subhagia*). *Subahagia* means that, as in the inscription, the successful crops, all their livestock and poultry/*hulun* are healthy, the people are not attacked by disaster/*upasargga*, not suffering/*pidanu* (in the current Malay-Indonesia language: pidana), no sleeping illness/*swapnawighna* (modern term: *insomnia*), productive in every undertaking, no illnesses/*nirwyadhi*, forever young/*ajara*, no theft/*curi*, no dishonesty/*ucca*, no homicide/*wadhana*, no adultery/*paradara*; kind/*tyaga*, virtue/*marsila*, patient/*ksanti*, forthseeing/*dhairyyamani*, industrious/*rajin*, artistic /knowledge of *samisrana*, and have learned friends/*kalyanamitra*. The last part is the vision of human sustainability, knowledge and scholars. Apart from that, suitable for his own life style in practising the doctrine of *Mahayana Buddhism* by way of *pranidhana*, and in the inscription it is termed as *waropaya* (the best effort according to the teachings of *Mahayana Buddhism* definitely is *madhyamaka* = the middle path as recorded in the inscription), to achieve happiness: he also expected (visionary and to ask) his people to follow his spiritual way as well until everyone achieved true enlightenment (*anuttarabhisamyaksamwodhi*). This was the vision, policy and strategy of King Jayanasa for spiritual sustainability and his people.

Certainly, the spirit and knowledge of Sri Jayanasa's sustainability strategy can be replicated now in the context of Islam, even though the term is similar to the realization and vision of a *wustdo* policy (a term used to replace *madhyamaka*) for happiness, and enlightenment, spirit and knowledge of human beings.

Sustainability during the Champa Kingdom in the Eighth to Eleventh Century AD

In ancient times, *Tok Batin Dunia,* or *Cakravantin* (original term used)*,* was a title given to a Buddhist Malayonesian king who was considered a great leader, or *Dewaraja/Devaraja* for a Hindu king. So far, we have found a Champa king with the title *Cakravantin* in 811S/Saka (= 889 AD) inscribed on a Phui Qui stone inscription (in Vietnam), but his name was not inscribed on the inscription. More interestingly, in 712 S (= 790 AD), a Campa king by the name Jayawarman (Jayavarman) II also obtained the title *Cakravantin* and *Dewaraja/Devaraja.* However, the greatness of *Cakravantin* (that is, the attributes that qualify a king to become *Cakravantin*), so far can only be known through a Campa inscription dated 1088 AD. The 32 attributes of

*Cakravantin*ness of a Campa king, Yan Po Ku Sri Jaya Indarawarmadewa/Inderavarmadeva on a 1088 AD inscription (details in Shaharir, 2008/2010). It is indeed interesting to note that one of the attributes of *Cakravantin*ness is the concern for sustainability, according to the current terminology. This is reflected in the attributes of *Cakravantin* (the 14th attribute), "Compassion for all creatures" (or its original expression, *karuna di yadomsarvvabhava*), and (its 20th attribute), "All-out fight against the six matters (*sadarriwarg/sadarivargga*), three of the six matters have attributes of capitalism and liberalism (which has become the base of economic development that is considered by *eco*-nomists as the enemy of sustainability): greed (*lobha*), a craziness-infatuation (*moha*), and pride (*mada*); moreover having *sanamu* characteristic (fair, *wustdo*-like) in pursuit of three things (*triwarga/ trivarga*) capitalist-liberalist life objectives (= enemies of sustainability): wealth (*artha*), pleasure (*kama*) and virtue (*dharmma*) life, and *apaksapata* (unbiased, fair, also supported by *madyamaka*, Buddhist moderation).

Cakravantin is also great concern for the spirituality of his people… encouraging his people to adopt the practice of devotion to Buddhism, that is, *dhayana, yoga* and *Samadhi* (21st – 32nd attributes of *Cakravantin*) which is no doubt being assumed the best way to build virtue: that is, the path towards sustainability and the next world (according to the teachings of the Buddha, the terms *loka* and *paraloka*).

In conclusion, the sustainability policies appreciated by the great Malayonesia leaders of the pre-Islamic era were to preserve the religion, happiness of the world and the next world and to prioritize *wustdo*-like.

The Great Majapahit Sustainability Leadership-Management

The grand scholar of Majapahit, (Prapanca, 1365), wrote (in Ancient Javanese language) in 1365 AD, that the golden age of the government of Majapahit under the glorified King Hayum Wuruk, was attributable to the remarkable management-leadership of a Majapahit *Prabhu* (Minister), Pateh Gajah Mada, who was blessed with the eighteen characteristics of a great personage. Of the 18 characteristics (Shaharir, 2008/2010), there are two which can be considered as having concern for sustainability are *"Masihi semasa Bhuwana"* (To love the universe and able to manage as best possible as a gift of God), and "*prasaja* "(simple lifestyle) and *sarjawa upasama* (humble, not arrogant), both characteristics could be accurately matched with *madyamaka* in Buddhism and *wustdo* in Islam. Leaders also strived to create an atmosphere of compassion, love with all universal beings, *"Sih Samasta Bhuwana",* that is the same level of happiness. Without doubt, the three characteristics have helped in the formulation of sustainability strategies which are still relevant till today, they are: great concern for nature/universe (ecology and environment), and the promotion of love-care among the people and His Majesty as well as to practice the principle of *wustdo.*

Sustainability and the Distinguished Malayonesian-Islam Leadership of the 13th to the 17th Century AD.

Sutrisna (2010) displayed the content of a Javanese manuscript from the era of early Islam in Java, during the era of influential influential Sunan. The manuscript, *Serat Centhini* by Sunan Pakubuwono IX, was known to revolve around the era of Sunan Giri and Mataram-Islam government of Sultan Agung (from the 16th Century).

Based on Sutrisni's interpretation of the manuscript, there were elements of ecological-environmental sustainability (flora-fauna) by the Javanese community who were concerned about the survival of the crows, *Prenjak*, and the *Belatuk Bawang,* as well as *Tukang,* each representing a certain aspect of human life. The survival of these birds should be pre-

served for the sustainability of these birds' habitat. Environments related to the life of the birds are mountains, jungles, plains near fresh water lakes, and it is recommended that human beings should love the mountains under a layer of lush green forest and the preservation of the forests' diverse ecosystems with fresh-clean water as being important for the sustainability of human beings.

Since the 8th century AD, Islam had a strong influence on the Malayonesian and this could be seen in the two Islamic kings of Malayapura-Sriwijaya (Sri Maharaja Sindrawarman, and Sri Maharaja Indrawarman between 718 and 730 AD). After that most of the Hindu-Buddhist values and virtue were modified or superseded by the teachings of Islam. The term currently known as "sustainability" was included in the change. The leaders who often changed the title from king or *vantin* (headman) to sultan were seen as the person assigned to perform of Allah commands and this included realization, according to present terminology, sustainability policies. This could be seen in the *Hikayat Raja Pasai* (HRP) and the author (believed to be in the early 16th century AD; and is considered to be the oldest Malay-Islam work available), told about the advice of the sultan of Pasai (present Aceh), Sultan Malik al-Manshur (Sultan Malikussaleh/Malikul Saleh) in the 1290s to his grandchildren, Malik al-Manshur (Malikul Mansur) and Malik al-Mahmud (Malikul Mahmud), **the guardian of Makruf and to prevent the committing of sins and greed for worldly property** (Shaharir, 2008/2010), that is, two matters, in our view, very important for the sustainability of this and the next world.

Bukhary al-Jawhary, Malayonesia-Islamic scholar and in his masterpiece, the *Taj al-Salatin* 1603, admitted that distinguished leaders are, among others, concerned about sustainability. This was made based on the axiom of distinguished leader (second) as a person who perform "duties of *nubuwwah* and *hukamah"* which meant that among other things, a person "calls for good and forbids evil", and one who considers himself as "a shadow of the Allah on earth (*Zilal fi al-ardh*) "; (the 4th axiom) as a "prudent" person, which meant, among others, "to befriend a learned person", "to follow Islamic law and *sunnah* of the Holy Prophet", "to hate tyranny", "not arrogant", "do not like luxury"; and (the 5th axiom), a "learned" and "intellectual" person or his original word *budiman* which he meant as his translation of the quranic term *ulil albab.* The characteristics of the *budiman* are, among others (according to *al-Qur'aan*), a person who "rejects all evil" (in Islamic context) because of "the worry and the fear of God" (*yaghsyallah* and *taqwa*), and "trust in God" (Shaharir, 2002). These characteristics have not been described in the context sustainability. "Evils", in the context of Islam, that is in confrontation with sustainability, are many such as, and very importantly, accept the concept of optimum in the area of management and planning (Shaharir, 2010), "destroy the earth" (*fasad fi al-ardh*), and "does not recognize and respect all God's creatures that are seen and unseen, moving and stationary", and "does not recognize and aware of the Day of Judgment." In short, sustainability would be assured if a leader (big and small; in Islam, each and every one of that person, is a "leader") is to appreciate the leadership axiom of Bukhary al-Jawhary mentioned above, in particular *wustdo*, the *ulil albab* and prudent characteristics; and to prosper the world and the next world of the people written and implied in the "job of *nubuwwah* and *hukamah*". Discourse on happiness in the Malayonesia-Islamic Civilization after al-Jawhary Bukhary are discussed in (Alinor, 2011).

Sustainability of Language, Knowledge and Religion

When Malayonesia became the centre for the development of the Hindu-Buddha religion in the east in general and in Southeast Asia,

Tiongkok (China) and Japan in particular, thus saw the beginning of the discussion on the sustainability of knowledge and religion in the Malayonesian Civilization. The study conducted by Alinor (2010) showed that around 250-600 AD, as many as 17 scholars were sent by the pre-Islam Malayonesian government Funan-Chenla and Champa) to Tiongkok. A clear manifestation of the number of scholarly works during the era of Funan could be seen in the 6th century AD when the Funan scholar Paramartha was summoned by the make a collection of works to be presented to the emperor of Tiongkok. He was successful in making a collection of 240 scholarly books (some in old Malay language referred to writers in Tiongkok as *Kun-lun*, and writers from Greece, *Kolan*), which were delivered to Tiongkok in 546 AD.

To date, we are still trying to detect their scholarly works. The three of them are Mandrasena, Samghapala and Paramartha, sent to Tiongkok by the government of Funan. The three of them were tasked as Sanskrit-Chinese translator and preacher of Buddhism in Tiongkok. Mandrasena arrived in Tiongkok in 503 AD and translated three books during that year. Samghapala reached Tiongkok in 506 AD and translated 12 books, while Paramartha reached Tiongkok in 546 AD and translated 76 books (we have traced a total of 34 titles to date). Around 605 AD, Liu Fang, a Tiongkok general, seized a total of 1,350 (one thousand three hundred and fifty) books from the Campa government most of which were written in the *Kun-lun* or *the Kolan* language. Then, around 700-714 AD, pastor I-Ching together with four friends, translated a total of 67 books in Sriwijaya into Tiongkok, with quite a number in the *Kun-lun* language. With reference to notes made by I-Ching during his seven years in Palembang (kingdom of Sriwijaya), he was drawn to the thousands of books written in Hindi (Sanskrit or Pali) and *Kun-lun.* However, we are still trying to find even one manuscript that was recorded by I-Ching written in the *Kun-lun* language.

The Malayonesian civilization became the focus for the continuation of the Islamic civilization. The proof is that the thousands of classical Malay manuscripts (the post-Hindu-Buddhist Malay language that had not been influenced by European colonial languages, and was largely influenced by the Arabic language, using modified Arabic alphabet known as Jawi or Pegon in Java) are kept in main libraries around the world, especially in Europe. An estimated total of 10,000 classic Malay manuscripts are kept in and outside Malaysia (mainly in Aceh and in Jakarta as well as in Leiden, in Europe. The evidence is still being collected by scholars, such as (Heer, 2008) as the latest example.

On the sustainability of language, the Malayonesian civilization had never neglected its own language in its acquisition of new knowledge from other civilization or in the innovation or creation by Malayonesians themselves since the pre-Islamic era (discussed above). This was already known when Malayonesia embraced Islam sustainably since the 13th century AD and this knowledge had all this while was known as knowledge of religion and humanity. Even though this was being expanded by a group of Malay researchers on Ethno-Mathematics (known as KuPELEMA=*Kumpulan Penyelidikan Etnomatematik Melayu*) at Universiti Putra Malaysia (UPM), especially since 2006 AD when the group displayed various Malay Jawi manuscripts dating back to the 17th century AD containing various elements of scientific knowledge (See KuPELEMA 2008) and many more scholarly masterpieces written in the Malay language compared to contemporary language of knowledge (Arabic). For example, of the 13 grand Malayonesian scholars from the 13th to the 17th century AD (who had authored more than 10 works each) beginning with Hdamzah al-Fanshury/Hamzah Fansury (died early 17th century AD) to Ahmad al-

Fatdany (died 1908), only two, that is, namely Hdamzah al-Fanshury and Yusuf al-Munkatsy/ Makassar (died 1699 AD) who produced more works in Arabic compared to their own language (Malay and Bugis) (see Shaharir, 2009). They believed that, "language is the soul of the nation" and "the language is the soul of knowledge" and therefore sustainability in a language is important for the sustainability of a race.

The Malayonesian language and knowledge, compared to Sanskrit which was the language of knowledge during the time of the pre-Islamic Malayonesian civilization, very little was generally known. Moreover just like an axiom of the Malayonesian civilization in Malay, "there is no language and knowledge of the pre-Islamic Malay). "This fact" is proven to be wrong by (KuPELEMA, 2008) as mentioned above and (Kozok, 2004), who has pointed out that there were a number of Minangkabau manuscripts written in Palawa in Kerinci, West Sumatra. Furthermore, we will try to find further evidence of the existence of the alleged 1350 Campa manuscript said to be in the *Kun-lun* language (the old Malay) written in Palawa. The discovery of managerial knowledge on inscription in Vietnam dated 1088 AD about *Cakravantin* (= Leader of the World) discussed above has become another example of faulty view. Other evidence are being worked on by the KuPELEMA team of researchers.

CONCLUSIONS

Multitude of definitions of sustainability and factors of from the above discussion, the status of the Western sustainability in Sections 1 – 4 it is evident that there is insufficient humanity and being as factors so much so that negligence has occurred in terms of its adequacy and happiness, culture (language in particular), spiritual (religious) and knowledge; alongside the occurrence of decadence in the appreciation of mathematical sciences. There is thus the need for a new definition of sustainability. **Our definition of sustainability is as follows.**

Sustainability is the state whereby present physical, social, political, economic, knowledge, spiritual-religious and the survival of language and culture are achieved and at the level of wustdo without sacrificing related resources and all creatures created by God so that future generations can enjoy happiness in this life and in the next world, at the very least as good as this generation.

All the requirements mentioned above not only meet the hierarchy of needs as proposed by Maslow in the late 1940s (physiological needs, intellectual or needs of the mind, and spiritual or self-actualization needs which are not necessarily religious), but also covers at least the three levels of *nafs* well-known in Islamic psychology: *nafs amaraht*, *nafs lawaamaht* and *nafs mutdma'innaht* or more refined the addition of a level after the second level, that is, *nafs mulhdamah*, and three more after *nafs mutdma'innaht,* that is, *nafs raadhiyaht, nafs mar-dhiyaht* and *nafs kamal* (KuPELEMA, 2008).

Knowledge according to Islam includes (In fact, there are sects which consider them as equivalence) faith, and according to the present epistemology languages are included (then only it means sustainability of faith and language cannot be ignored). Regarding the spiritual-religious respect, it is important because the existence of "religion" means the existence of spirituality that is not related or associated with celestial religions but purely mystical only (strange and beyond the general understanding of mankind or something not falsified by ideology (Popper, 1934/1958), or that meet the new criteria of (Penrose, 1994), that is proven to have no algorithm. All the creatures not just meant living and non-living things according to biological definitions or biology in modern sciences only but also refer to mysterious-unseen creation such as *jinns* and *malaaikahts* (angels). About happiness, it is not matched with the indices of the present

Western economy, but it is a completely new concept as described in (Shaharir, 2008). This concept of happiness is also reflected on its meaning in historical examples in the sustainability of Malayonesian Civilization discussed in section 5 and some of which are still relevant today.

Therefore, a new paradigm in sustainability emerged and this new theory in particular, based on a suitable mathematical model that will be called upon to be formulated in the near future.

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