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Directions of Scientific Research – Derived from the Study of Ecosystem Value

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The ecosystem service value (ESV) is the most popular concept for measuring ecosystem value to support sustainable management recent years. "Ecosystem service was defined as the benefits human populations derive, directly or indirectly, from ecosystem functions" (Costanza et al., 1997). The evaluation of ESV uses an approach based on economic and sociological techniques such as market and non-market components as well as willingness-to-pay, etc (Costanza et al., 1997). After more than ten years application of ESV in coastal management and decision-making processes, we found that the losses of ESV calculated were average 10 % of the benefits of human development activities (Ye, 2020; Zhang, et al., 2015). Such a low ESV loss would be hard to stop the frantic development of mankind, and therefore, could not support sustainable management (Ye, 2020; Sheng, et al., 2019). We believe that the underestimation of ESV are mostly caused by an incorrect view of scientific research, and using the concepts and the techniques of economics and sociology, which are all subjective expressions of mankind, not objective expression of ecosystem value (Ye et al., 2020; Sheng, et al., 2019; Zhang, et al., 2015).

Coming from ESV concept and its methodologies, the problems of scientific research are as following:

1. Existing concepts and methods for scientific research are all based on the human vision and cognition to think the world and universe, not based on nature, such as ESV, which could not get objective natural laws that reflect the real world (Zhang, 2020). We have to follow the theory that "man is an integral part of nature", an ancient Chinese philosophy (Wu et al., 2020) and the view of Millennium Ecosystem Assessment (MA, 2003), and carry out scientific research based on the essential attributes of nature (Zhang, 2020). We cannot deny the facts and problems that have not been discovered and detected by modern science right now, and should follow the characteristics and law of nature (Zhang, 2020). For example, "the concept of information plays a fundamental role in our everyday experience, but is conspicuously absent in framework of classical physics……and is absent in the mechanical conception of reality that underlies classical physics" (Goyal, 2012). The research for ecosystem intrinsic value (EIV) holds that view (Ye et al., 2020; Sheng, et al., 2019; Zhang, et al., 2015). It defined that an ecosystem has a value depending solely on its intrinsic properties, irrespective of needs, wants and benefits of humans, and the EIV is defined as the objective value of the ecosystem in and for itself (Ye et al., 2020; Sheng, et al., 2019).
2. Nature is a dissipative structure, which requires multidisciplinary and comprehensive research. Modern scientific research, however, has divided science into many disciplines, seriously distorted nature's essential attributes, caused any scientific research to be fragmented, and failed to obtain the true meaning of nature. "For example, in quantum formalism, there are states of a composite system composed of two subsystems that cannot be specified by giving the state of each subsystem considered separately. Such states are known as entangled states, and vastly outnumber states that are not entangled. Thus, entangled states are generic—not the exception but the rule……The system has no way of determining the

precise nature of these entanglements by studying the system alone" (Goyal, 2012). Scientific research should be based on a comprehensive and holistic concept of time and space for the ecosystem and/or any other disciplines in order to obtain a complete and true research objects and results, for example, the research of EIV integrated all elements and components of a complete, integrated, comprehensive ecosystem although modern science has yet to come to a definitive conclusion about ecosystem information (Ye et al., 2020; Zhang, 2020). It includes not only mathematics, physics, chemistry and biology, but also astronomy, geography, ocean, and even ancient philosophy, history, sociology, culture and religion (Ye et al., 2020; Sheng, et al., 2019), such as The Book of Changes and Daoism.

3. Material motion and contradiction are absolute, while rest and balance are relative, because there is no any inertial reference system in the universe, and any objects in the universe are in a gravitational field, such as mass and weight of matter (Zhang, 2020). We have to treat scientific research dialectically, and make full use of dialectics, not focuses on the thinking of human vision and cognition. In ancient China, over 2,000 years ago, there were well-established dialectic treatises, such as Zhouyi, Daoism and Yin-Yang, guided human research and life, especially traditional Chinese medicine, so China is not afraid of COVID-19.

In a word, scientific researches need to base on the essential attributes of nature; follow natural holistic view, and make full use of dialectics. The Concept of Absolutism should be considered (Zhang, 2020).

Conflict of Interest: The author declares that he has no conflict of interest.

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