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经济·金融
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研究报告

RESEARCH REPORT

经济全球化与亚洲的选择
ECONOMIC GLOBALIZATION AND THE CHOICE OF ASIA
亚洲智慧：在多元中寻求和谐发展
ASIA'S WISDOM: SEEKING HARMONIOUS DEVELOPMENT IN DIVERSITY

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增长奇迹之后的亚洲：困境、挑战与选择

2013 年上海论坛世界经济分论坛研究报告

一、经济增长奇迹之后亚洲面临的主要问题

第二次世界大战之后，以日本、中国以及“四小龙”（即韩国、中国香港、中国台湾、新加坡）、“四小虎”（即泰国、马来西亚、印度尼西亚、菲律宾）等 10 个经济体为代表的亚洲经济增长引起了全球的高度关注。正如世界银行研究报告所指出的，在如此广阔的地区取得这种成功的机会在统计意义上是很少见的¹。

不过，亚洲增长奇迹并非表现为这些经济体的同时高速增长，而是表现为“雁形”序贯增长。日本是这一增长奇迹的“领头雁”。经过 1945–1951 年的调整与恢复，日本经济重回战前水平，随后进入长达 20 年的持续高速增长期。世界银行统计数据显示，日本的 GDP 在 1950–1960 年间的平均增长率为 8.6%、在 1960–1970 年间的平均增长率则超过 9%（见表 1）。然而，20 世纪 70 年代之后，日本经济增速开始下降，并进而陷入持续衰退、相继出现两个“失去的十年”。

但亚洲经济高速增长“接力棒”随即被“四小龙”接住。实际上，表 1 显示，作为亚洲“四小龙”的韩国、中国香港、中国台湾和新加坡在 20 世纪 60 年代就已经出现经济增长逐渐加速的迹象，这一势头一直延续到 20 世纪 90 年代初。经过 30 多年的高速增长，这些经济体成为继日本之后亚洲新兴的发达经济体。演绎亚洲增长奇迹的还有另外一组经济体即泰国、马来西亚、印度尼西亚和菲律宾组成的亚洲“四小虎”。虽然这些经济体在 1960–1990 年间的总体增长表现逊于亚洲“四小龙”，但进入 20 世纪 90 年代则像这之前的亚洲“四小龙”一样高歌猛进。然而，在 1997 年亚洲金融危机以及 2008 年全球金融危机的持续打击下，“四小龙”和“四小虎”的经济增长均出现了不同程度的下降，高速增长奇迹似乎渐行渐远。中国在 20 世纪 70 年代末加入了亚洲经济高速增长的经济体行列，尽管经历了苏东巨变以及两次金融危机的冲击，仍把增长奇迹一直延续至今。如今，在亚洲经济增长的版图中，中国似乎是“一枝独秀”。

不过，对于是否存在亚洲奇迹，一直以来就有很多争论。如果存在奇迹的话，那么到底是哪些因素造就的呢？对此早有很多研究进行了探讨。其中最为系统、权威的文献当属世界银行在

¹ World Bank, 1993, *The East Asian Miracle: Economic Growth and Public Policy*, Oxford University Press, p.5.

1993年发表的报告《东亚奇迹》。这方面研究大致将亚洲增长奇迹的动因归纳为八个方面：稳定的宏观经济环境、高储蓄率和投资率、高质量的人力资本（良好教育与高识字率）、任人唯贤的官僚体制、较低的收入不公平程度（贫困减少）、出口促进、成功的工业化、外商直接投资（FDI）及其相关的技术诀窍转让。

表1 东亚与东南亚主要经济体的增长奇迹：1961-2011

	1961-1965	1966-1970	1971-1975	1976-1980	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2007	2008	2009	2010	2011
日本	9.38	9.21	4.60	4.39	4.28	5.01	1.42	0.85	1.20	0.35	2.19	-1.04	-5.53	4.44	-0.70
中国	1.87	7.44	5.94	6.62	10.78	7.92	12.28	8.62	9.76	11.22	14.20	9.60	9.20	10.40	9.30
韩国	5.94	10.59	7.57	7.03	7.83	9.65	7.82	4.55	4.50	3.84	5.11	2.30	0.32	6.32	3.63
中国香港	13.88	6.71	7.70	11.70	5.76	7.81	5.23	2.75	4.18	4.00	6.39	2.31	-2.66	6.97	5.16
中国台湾	9.32	9.48	8.94	10.63	6.43	8.88	7.23	5.25	3.63	4.21	5.98	0.73	-1.81	10.72	4.03
新加坡	7.39	12.84	9.55	8.60	6.93	8.69	8.57	5.84	4.83	6.62	8.86	1.70	-0.98	14.76	4.89
泰国	7.19	9.16	5.77	8.00	5.45	10.34	8.62	0.64	5.11	3.62	5.04	2.48	-2.33	7.81	0.05
马来西亚	6.88	6.11	7.19	8.55	5.15	6.91	9.47	4.99	4.76	4.54	6.48	4.81	-1.64	7.19	5.14
印度尼西亚	2.03	6.33	7.82	7.93	5.67	7.14	7.87	0.99	4.73	5.74	6.35	6.01	4.63	6.20	6.46
菲律宾	5.23	4.62	5.78	6.07	-1.14	4.74	2.19	3.59	4.60	4.96	6.62	4.15	1.15	7.63	3.72
文莱	-	-	0.36	10.68	-3.25	0.08	3.17	1.35	2.08	0.69	0.15	-1.94	-1.77	2.60	
柬埔寨	-	-	-	-	-	-	7.77	7.34	9.36	6.75	10.21	6.69	0.09	5.96	6.93
老挝	-	-	-	-	5.07	4.47	6.19	6.17	6.24	8.01	7.60	7.82	7.50	8.53	8.04
缅甸	4.54	1.91	3.02	6.34	4.83	-1.98	5.90	8.53	12.71	-					
越南	-	-	-	-	3.81	4.79	8.21	6.96	7.51	7.02	8.46	6.31	5.32	6.78	5.89
世界	5.54	5.10	3.79	3.92	2.83	3.68	2.32	3.39	2.77	2.27	3.94	1.33	-2.25	4.34	2.73

数据来源：<http://data.un.org/Explorer.aspx>。

然而，不幸的是，1997年的亚洲金融危机与2008年的全球金融危机给亚洲经济蒙上了一层厚厚的阴影。亚洲增长奇迹是否已经结束？包括中国在内的亚洲经济体是否也同日本一道站在“逝去10年”的门口？要回答这些问题，我们必须首先反思亚洲内部目前到底存在什么样的问题。

首先，我们应该重新认识亚洲目前分工模式的实质。从全球发展趋势看，一方面，世界市场与贸易投资越来越一体化（integration）；另一方面，中观层面的产业链以及微观层面的生产活动和生产过程变得越来越分散化（disintegration）：企业尤其是国际化企业通过FDI或非股权模式（NEMs）如外包（outsourcing）等形式将其不同的生产阶段布局于不同的国家和地区；一种产品的生产往往由多个国家的多家企业共同完成，其生产的各个环节及其增加值是在不同国家实现的，即出现所谓的“基于任务的贸易”（trade in tasks）。总体来说，美国是这一全球分工模式的主导者。从亚洲地区看，“雁形”模式是这一地区分工模式的基本特征，即以日本为雁头，其次为亚洲“四小龙”，然后是中国与亚洲“四小虎”及其他东盟经济体。在这一模式中，日本先发展某一产业；当技术成熟、生产要素（特别是劳动力）成本上升、本土生产丧失优势时，日本将这一产业及其相关技术转移至亚洲“四小龙”；与此同时日本产业结构升级到新的层次。同样地，亚洲“四小龙”在这一产业发展成熟后则进一步将之转移到更落后的国家，亚洲“四小龙”的产业结构也相应升级。以此类推，产业不断转移、承接，各经济体呈现出序贯、递进的发展态势。但需要强调的是，日本引领的亚洲“雁形”分工模式只是美国主导的全球分工模式的组成部分。如果离开后者，前者的动态演进将无法持续。因为从本质上讲，日本引领的亚洲“雁形”分工模式是由日本的制造驱动的，而美国主导的全球分

工模式则是由美国的创新驱动的。亚洲内部少不了日本，而外部则少不了美国。所以，亚洲经济是开放的区域经济，不能封闭起来单独搞内部分工，而应该有全球视野，积极融入全球分工体系。

其次，亚洲目前及未来的经济增长面临着一些亟待突破的约束条件。归纳起来，主要存在四个“非对称性”问题。

第一，供给与需求的“非对称性”。亚洲经济体尤其是日本和中国两个大国的内需长期不足，导致这些经济体的总体国内供给与国内需求严重失衡，过剩的供给只有通过净出口即外需来加以平衡。表2显示，在过去的10年里，越来越多的经济体出现了经常项目的顺差。到2011年，所有10个经济体的经常项目均处于顺差状态，占各自GDP的比重从0.24%（印度尼西亚）到19.7%（新加坡）不等。经常项目顺差（主要是贸易顺差）也反映了国内储蓄大于国内投资。从表3可以看出，近些年来，除了日本、菲律宾外，其他经济体的储蓄率均在30%或以上，中国和新加坡则高达50%。不过，日本在经济高速增长时期的储蓄率也达到40%。根据标准新古典增长模型中的储蓄黄金律（golden rule of saving rate），使稳态消费（steady state consumption）最大化的储蓄率应该等于资本占GDP的份额。若以此为标准，则这些经济体中的大多数都存在过高的储蓄率以及过低的消费率。

表2 主要经济体的经常项目差额占GDP比重（%）

%GDP	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
日本	1.44	2.56	2.14	2.87	3.22	3.74	3.64	3.92	4.84	3.27	2.92	3.74	2.04
中国	2.97	1.72	1.32	2.43	2.78	3.53	5.87	8.35	10.13	9.10	5.17	5.32	2.86
韩国	-0.51	2.78	1.67	1.31	2.42	4.48	2.20	1.48	2.07	0.34	3.93	2.90	2.38
中国香港	6.20	4.13	5.87	7.58	10.39	9.48	11.35	12.07	12.34	13.70	8.58	5.52	4.14
中国台湾	6.62	2.73	6.21	8.51	9.41	5.80	4.82	6.99	8.94	6.87	11.37	9.27	8.91
新加坡	8.04	10.86	12.86	12.94	22.71	16.99	21.07	24.84	27.28	14.73	19.20	22.25	19.71
泰国	-8.53	7.59	4.41	3.67	3.35	1.71	-4.34	1.12	6.35	0.81	8.30	4.11	3.43
马来西亚	-1.90	9.05	7.85	7.13	12.14	12.09	14.48	16.73	15.94	17.48	16.48	11.48	11.49
印度尼西亚	-2.37	4.83	4.29	3.99	3.45	0.61	0.10	2.98	2.43	0.02	1.97	0.73	0.24
菲律宾	-5.49	-2.75	-2.29	-0.35	0.34	1.78	1.92	4.37	4.76	2.08	5.56	4.47	3.15

数据来源：<http://data.un.org/Explorer.aspx>。

表3 主要经济体的国内储蓄占GDP比重（%）

	1960	1970	1980	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
日本		40.05	31.15	33.40	26.55	24.94	23.80	24.05	24.46	23.87	23.94	24.57	23.17	20.03	20.97	
中国		28.93	34.83	39.13	37.53	38.39	40.44	43.40	45.81	47.63	50.67	50.54	51.76	52.65	52.13	52.52
韩国	1.87	15.16	23.91	36.44	33.42	31.42	30.67	32.16	34.09	32.39	31.01	30.94	30.03	29.98	31.93	
中国香港	23.74	28.12	34.37	35.67	31.90	29.82	31.13	31.16	30.70	33.00	33.13	31.76	30.70	28.77	29.32	
中国台湾	17.52	25.36	31.75	31.00	28.36	26.29	27.66	29.39	29.55	28.63	30.30	31.16	29.07	28.54	32.54	30.46
新加坡	8.85	19.34	38.03	45.12	46.03	42.34	41.23	44.00	47.41	49.38	50.57	53.01	51.25	51.34	50.55	49.11
泰国	14.08	21.17	22.89	33.84	31.47	30.59	30.49	31.75	31.65	30.32	31.79	34.82	31.69	31.79	33.30	33.07
马来西亚	25.47	24.29	29.81	34.48	46.08	41.84	42.03	42.46	43.42	42.82	43.09	42.15	42.48	35.98	39.23	
印度尼西亚	12.37	14.31	38.04	32.26	32.76	30.81	27.70	32.94	28.73	29.23	30.81	28.96	28.87	33.79	34.05	39.49
菲律宾	18.54	21.88	24.19	18.38	16.38	15.29	15.53	15.45	16.11	15.95	16.22	17.24	16.83	15.47	18.73	11.92

数据来源：<http://data.un.org/Explorer.aspx>。

表 4 主要经济体的总资本形成占 GDP 比重 (%)

	1970	1980	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
日本	39.71	32.33	32.72	25.44	24.75	23.07	22.85	23.04	23.57	23.79	23.69	23.55	20.20	20.17
中国	29.02	34.83	34.87	35.28	36.48	37.82	40.96	43.02	41.61	41.83	41.73	43.93	47.67	49.33
韩国	26.06	32.89	38.09	30.56	29.16	29.20	29.89	29.93	29.69	29.62	29.43	31.21	26.28	29.15
中国香港	20.41	34.85	27.03	27.46	25.32	22.84	21.92	21.84	20.57	21.73	20.93	20.44	21.31	23.71
中国台湾	25.35	33.29	24.37	25.68	19.84	19.34	19.91	23.70	22.72	22.68	22.12	22.40	17.66	22.63
新加坡	38.20	44.98	35.05	33.18	26.77	23.77	16.12	21.75	19.97	21.03	21.07	30.20	26.36	23.83
泰国	28.23	29.14	41.35	22.84	24.10	23.80	24.97	26.79	31.44	28.30	26.43	29.12	21.24	26.01
马来西亚	18.74	29.94	31.84	26.87	24.40	24.78	22.76	23.05	19.99	20.45	21.56	19.32	14.44	21.42
印度尼西亚	12.79	19.00	27.91	22.28	22.59	21.43	25.60	24.06	25.08	25.40	24.92	27.82	31.00	32.49
菲律宾	24.54	33.44	27.77	18.37	22.14	24.47	22.98	21.61	21.55	18.01	17.34	19.29	16.59	20.54

数据来源：<http://data.un.org/Explorer.aspx>。

第二，成本刚性（汇率升值与工资刚性）与创新不足的“非对称性”。内生性创新不足是亚洲整个区域的普遍性问题，已经为很多研究所证实。这些研究存在两个基本共识：一是全要素生产率（TFP）对亚洲新兴经济体增长的贡献微乎其微，没有证据显示这些经济体的 TFP 增长高于世界平均水平尤其是主要工业化经济体的水平；二是这些经济体通过购买实用技术或吸引外资，在一定程度上缩小了与先进国家的技术差距，但由此产生的技术溢出效应实际上是十分有限的。因此，2008 年诺贝尔奖获得者保罗·克鲁格曼指出，亚洲增长主要来自于汗水而不是灵感，来自于更努力的工作而不是更聪明的工作¹。

内生性创新不足与成本刚性的非对称性尤其反映在日本与中国这两个区域内经济大国的发展过程中。日本在“二战”之后到 20 世纪 70 年代的经济迅速恢复与高速增长，在很大程度上归因于日本实行的外向型经济政策即货币汇率稳定条件下的贸易自由化。然而，20 世纪 80 年代中期之后，日本政府在美国的压力下错误地选择了促使日元升值的政策，而非采取进一步开放国内市场以及推动贸易自由化的政策，从而使得日本企业的出口竞争优势受到很大削弱。另一方面，日本的特殊就业体制即终身雇佣制、年功序列制与企业内工会三位一体的体制在促进企业乃至整个经济稳定发展的同时，也使得劳动力市场缺乏应有的弹性。但如果日元升值和工资刚性能够被创新所抵补，则问题并不太大，但事实正好相反，结果导致了日本 20 世纪 80 年代之后的经济减速以及经济停滞。

对照日本的过去，今天的中国似乎正在步人后尘。毫无疑问，开始于 20 世纪 70 年代末期的中国经济的高速增长，在很大程度上归因于中国的改革开放，尤其是中国实行的外向型经济政策即先是货币贬值、而后（1994 年之后）是货币汇率稳定条件下的贸易自由化。然而，2005 年 7 月 21 日开始的人民币汇率升值趋势以及近年来实施的新劳动法规，正在把中国引向日本过去已经走过的错误道路。但中国有可能比日本更糟糕，因为日本当年在成本刚性（汇率升值与工资刚性）与创新不足的“非对称性”冲击下，其国内企业很好地实施了“走出去”战略、实现了国际化，如今日本

¹ Krugman, Paul, “What ever Happened to the Asian Miracle?” Fortune, 8/18/1997, Vol. 136, Issue 4, pp.26-28.

的跨国公司全球也是极具影响力的。而如今这一非对称性对中国的冲击却未能促使中国企业“走出去”。我们一方面看到民营企业因此纷纷倒闭，另一方面看到国有企业跃跃欲试，但却受到东道国的种种猜忌与限制，国际化步履维艰。

第三，生产率增长与工资增长之间的非对称性。根据经济增长核算模型，当资本-劳动比率可变时，劳动生产率增长率和全要素生产率增长率之间的差别是很大的。比如，Young 在 1992 年通过研究发现东亚经济体的全要素生产率增长率接近于零，但劳动生产率增长率却较高。这一差异源于较快的资本积累¹。当劳动生产率增长率高于工资增长率时，即使 TFP 增长率很低，经济增长也能持续下去。

但对于目前的亚洲而言，包括中国在内的较多经济体都是比较典型的劳动力过剩的“二元经济”。在这样的经济中，一方面劳动力市场无法出清，因为存在较严重的就业结构与产业结构不匹配问题；另一方面在法律、劳工标准等制度约束下以及受到生活成本的托举，劳动力工资存在向上攀升的刚性。工资成本的上升提高了资本-劳动比率，降低了劳动力参与率，增加了劳动力市场出清的难度。当工资增长率超过劳动生产率增长率时，经济增长将在创新不足的情况下出现停滞。于是，我们看到两个“并存”的现象：失业或就业不足与工资上涨并存、劳动生产率停滞与工资上涨并存。这两个“并存”现象实际上是政策干预导致市场机制出现扭曲而不能发挥有效作用的必然结果。

第四，产业政策与市场导向之间的非对称性。经济学关于产业政策与市场机制的作用及其相互关系的研究文献可谓汗牛充栋，不同经济学派的观点不尽相同。就亚洲而言，在过去几十年里，这一地区的几乎所有经济体都有产业政策（中国香港是例外，但它受惠于中国大陆的产业政策），产业政策成为这些经济体发展战略的有机组成部分。这些经济体政府推行产业政策的主要途径包括直接通过国有企业进行重点扶持以及通过干预要素（土地、资本）市场来改变目标行业的投入成本结构进而达到扶持的目的。这些做法即使有一些积极影响，也不必多谈。

我们需要强调的是，以产业政策表现的政府干预在克服市场失灵或借口克服市场失灵的同时，往往会产生很大的问题，具体表现为：一方面，越多的产业政策意味着越多的寻租空间，这为腐败提供了机会，因而激励着政府官员及其他利益相关者想方设法出台和实施更多的产业政策；另一方面，越多的产业政策意味着越多的资源配置扭曲，这为政府进一步出台新的产业政策提供了借口即解决由上一个产业政策导致的市场失灵。这一恶性循环的问题在非民主国家和地区表现得尤为严重。在这样的经济体，产业政策重则导致经济崩溃；轻则导致产业泡沫。比如，近些年来亚洲一些经济体的房地产泡沫就是错误的产业政策导致大规模资金流向该行业的结果。这不是市场失灵了，而是政策出了问题。

2001 年的世界银行研究报告认为，病态的产业政策至少具有以下特点：（1）没有经过周密的

¹ Young, Alwyn, “A Tale of Two Cities: Factor Accumulation and Technical Change in Hong Kong and Singapore”, NBER Macroeconomics Annual 1992, Volume 7.

计算，目的不是基于克服某些市场失灵；（2）没有针对特定的市场失灵，或者目标不是最大限度地发挥某些特定战略性产业的外部效应；（3）在设法提高效率时却忽略了市场信号；（4）低估了执行有效干预行为所需要的信息的作用；（5）高估了政府有限的的能力；（6）夸大了建立有效的产业所需的人力和其他资源的可获得性；（7）忽略了效率、规模和其他相关方面的因素¹。产业政策所隐含的“致命的自负”不在于产业政策本身的好坏，而在于政府通过产业政策从来就不可能没有代价地达到既定的目标。

总之，亚洲过去的增长奇迹是增量扩张带来的奇迹，具体表现为货币汇率稳定条件下的外向型经济发展、相对较低的劳动力成本优势以及亚洲经济体之间的有序产业分工与转移。目前之所以会出现以上四个“非对称性”问题，实际上主要是由于这样的增量扩张结束导致的。然而，到底是什么原因导致这样的增量扩张这么早的结束呢？答案显然不在于市场，而在于政府的政策。这正如克鲁格曼所言：“亚洲的麻烦的最大启示不在于经济方面，而在于政府方面。当亚洲经济进展顺利时，你可以认为这些经济体的规划者知道他们自己在做什么。现在真相大白了，他们其实不知道自己在做什么。”²

二、经济增长奇迹之后亚洲完成起飞的约束条件

1、汇率和资源：完成经济起飞的硬约束

（1）维持有竞争力的汇率水平

中国及其他东亚主要经济体半个多世纪以来的发展经历证明，低估的有竞争力的汇率水平对本国的经济增长有至关重要的正面影响。东亚国家，人口众多，自然资源贫乏，在经济发展的早期，均存有大量的农村富余劳动力，面临二元经济的转型。以制造业为主的贸易品生产部门，具有规模经济的特征，且其劳动力就业弹性非常高。低估的实际汇率可以通过提高贸易品的相对价格使劳动力要素更多地转移到外向型的制造业，在一个相对短的时期提供有效的激励促使数亿农民成为现代产业工人，其中的宏观价格扭曲使得原本极度缺失的劳动力要素市场的微观效率有了本质的提高。同时，因直接面对发达市场，贸易品部门相对非贸易品部门的生产技术更容易与国际接轨，而与此伴随的招商引资带来的干中学效应以及一些强制性的技术转让政策更使发展中国家的制造业水平快速上升。“生产发达国家所生产的”是东亚国家现代产业成长的普遍经验，而低估的汇率又是其中的关键逻辑节点。东亚发展中经济体的低估汇率通过价格竞争力为其产品打开了市场，使它们在经济起飞的早期就进入了贸易盈余阶段。多数经济体因此克服了外汇短缺，为大量进口发展制造业所

¹ Stiglitz, Joseph and Yusuf, Shahid, Rethinking the East Asian Miracle, The World Bank, 1818 H Street, N.W., Washington, D.C. 20433, USA, 2001, pp.489-490.

² Krugman, Paul, “What ever Happened to the Asian Miracle?” Fortune, 8/18/1997, Vol. 136, Issue 4, pp.26-28.

必需的资本品提供了条件，从而为今后的长期快速增长创造了机会。低估的实际汇率还通过压低实际工资使收入向企业倾斜。而企业的积累率通常远高于居民，结果使得全社会的储蓄率明显上升。低估的汇率另有一个衍生的效应，其带来的贸易品相对价格的提高会抑制消费并增加储蓄，客观上满足了扩大再生产的需要。由于发展中经济体的经济运行存在大量市场扭曲，在自然情形中，许多要素不会流入最具活力的贸易品生产部门，定向的产业政策常被证明是合理的。但世贸组织等国际组织对出口补贴和其他关税或非关税壁垒等更有针对性的措施有严格限制，因此，低估汇率作为产业政策的一种替代品成为了许多政府的次优选择。大量的实证材料证明，该政策对本国的经济增长有显著的促进作用。改革开放之后的中国更是一个突出的例子。

由古典的休谟货币价格机制的逻辑，就长期而言，低估汇率导致的货币增量将引起商品价格上升，进而使实际汇率升值。因此，有意压低汇率的重商主义逻辑在长期是无效的。但中国等东亚经济体的央行有能力通过直接或间接的冲销手段消弭通胀压力，使得其实际汇率在相对长的时期保持在一个较低的水平。但与此同时，长期低估汇率所衍生的资本内流使央行的冲销压力加大，因此在可预见的未来，包括中国在内的东亚后进国家应合理安排资本市场的对外开放顺序，在一个相当长的时期内保持有效的资本管制特别是对内流的管制。核心通胀尤其是工资的过快上升可使实际汇率的竞争力降低，各国政府应在平衡收入差距的同时，不应使实际工资的上升速度快于劳动生产率的增速，片面地追求缩小收入差距很可能会本质地降低对外竞争力。土地和房地产的价格也直接影响其他要素的价格，政府应大力弱化土地财政，以此控制非贸易品价格的过快上涨，严防“荷兰病”的发生。有研究表明，即使是短期的实际汇率高估也会对本国的制造业造成长期的负面影响¹。同时，由于新兴市场的特点，过分自由的浮动汇率增加了微观成本，并且没有宏观自动调节的功能，反而会放大周期性的波动。显而易见，低估汇率的出发点就是在适度失衡的逻辑下维持实际汇率在发展意义下的长期动态均衡。在一个相当长的时期内保持名义汇率的相对稳定可能还会是一个通常的做法。

二战后半个世纪，日本及四小龙、四小虎经历了经济起飞。在冷战背景中，美国扶持日本及资本主义阵营中的几个东亚经济体。在此期间，尽管这些经济体的货币也常有低估，但由于他们多数体量较小以及其特殊的时代背景，由此产生的外部压力相对较小。然而，近二十年，由于中国的加入，东亚的经济起飞相对世界其他地区，有更大的外部性。东亚经济体的发展虽然给外部市场带来了大量的廉价商品，同时对外部形成大量需求，但更多地则是经济发展阶段所特有的低端制造能力的急剧膨胀对外部形成的竞争压力。要维持外向型制造业发展所必须的低估汇率由于其很强的负面外部性而显得难度很大。西方国家尤其是美国在近十年不断对中国进行施压，要求人民币升值，有关汇率问题的摩擦日渐常态化。但是，适度低估的实际汇率水平一定是中国及其他后进东亚国家的坚定明确的政策目标。

¹ Krugman, Paul (1987), "The Narrow Moving Band, the Dutch Disease, and the Competitive Consequences of Mrs. Thatcher," *Journal of Development Economics*, 27(1-2):41-55.

尽管有这样或那样的维持成本，历史的经验证明这是有助于经济起飞的政策工具箱中的最有效的一个。中国等国家应该据理力争，力求争得自己的至为关键的发展空间。在最近的十到二十年的时间内，坚持维持低估汇率政策不动摇，即使有些成本也在所不惜。从全球范围的长期图景来看，东亚国家现阶段的产业腾飞，关系到十多亿人民的未来，给东亚以空间，应该是所有具有良知的人们共同判断¹。长期维持适当低估的实际汇率水平以使自己的国家完成经济起飞并最终进入发达国家的行列，是东亚十多亿人民的愿景。然而，随着经济发展水平的提高，汇率低估的正向外外部性也会慢慢淡化，这时，可以降低汇率低估的幅度。在条件成熟时，亚洲国家间尤其是与欧美国家间应大力发展自由贸易区，努力降低国际贸易的成本，为替代相对高成本的汇率政策做准备。

（2）克服资源环境的约束

以中国为代表的东亚后进国家现正处于经济起飞的中段，其产业以重化工为特征，能源和各种矿产品的使用高度集中，在可预见的十至二十年中，基本格局可能不会改变，其中的资源和环境瓶颈凸显。以中国为例，总体而言，将持续面临总量需求大，液体燃料、基本金属和关键农产品短缺，环境污染严重，温室气体增量排放，资源利用效率低下等问题。这里，保证供应以满足不断增长的刚性需求还会是一个主要任务。许多欧美发达国家能耗已不再增长，可再生能源替代传统能源已具备技术可能性和经济合理性。而中国等东亚国家尚处于经济总量和能源需求快速增长的阶段，传统能源还会在一个相当长的时期内扮演主要角色。如何充分合理利用自己的禀赋，清洁利用煤炭等传统能源是当务之急。

据估计，直至2050年，煤还会占总耗能40%以上。集约化大规模地清洁利用煤炭资源是“中国式”低碳发展的最重要抓手。目前，中国的80%的二氧化碳来自煤炭燃烧，同时带来了更高比例的二氧化硫排放。大量家庭和企业仍在分散直燃煤炭，造成了严重的酸雨和惊人的PM10和PM2.5浓度。清洁化用煤对于降低排放比任何新能源的开发效果都更为直接。运用类似多联产能源系统等成熟技术对煤的低碳利用将会立竿见影，在煤化工领域搞好二氧化碳的利用和埋存的技术已经成熟。目前，中国的粗放使用煤炭所形成的酸雨特别是溶胶体悬浮物对环境的直接影响可能大于二氧化碳等温室气体的排放，系统利用成熟技术，集约使用煤炭，干净清洁燃煤是还中国以蓝天的关键。这里，城市化可能是有效率的煤炭清洁化的根本出路。

加大开发页岩气和页岩油的力度，在高质液态和气态能源供应方面有所突破是一个可预期的愿景。利用页岩气开发的新技术，美国天然气在近期可自给有余。在看得到的未来，页岩油的广泛开发很可能使美国成为原油的净出口国。中国的页岩油气的前景同样很可观，据美国能源情报署（US EIA）估计，中国页岩气资源占全球的五分之一，并且拥有全球最大的技术可采资源储量。中国政府已经将页岩气列为五年能源计划的一个基石，计划到2020年将商业产量从现在的零提高到每年

¹ Rodrik, Dani.(2010), "Making Room for China in the World Economy." American Economic Review, 100(2): 89-93.

600 亿立方米。在这方面持续加大投入，搞好开发技术的吸收消化，中国及东亚地区发生类似当前美国的变化也是可能的。

在当前的经济发展阶段和技术条件下，新能源更多地在边际意义下起到了替代作用，片面追求风能、太阳能和生物质能等新能源不仅没有经济合理性，在全生命周期的逻辑框架下可能总量也不能减排。比如，中国扩大国内非常规能源供应的努力在许多领域取得了令人瞩目的成功，中国风力发电机组的装机量已是全球范围的最大，但由于电网的技术及某些客观条件和体制障碍，单机年平均发电小时仅为 1000 余小时。无独有偶，打着新能源旗号的单晶硅生产耗能巨大，起码需要其连续工作 5 年才能使其产生正面的节能效果。而前段时间风行一时的农村秸秆发电的综合节能效果也很可疑。上述所谓的新能源技术获得了大量的国家财政补贴，但对中国的减排从结果看效果并不理想。在现阶段，合理利用传统能源比“大跃进”式的新能源开发更行之有效。

面对资源瓶颈，需要开源，更要节流。未来的发展目标应该是适中舒适程度和低能耗模式。中国及周边东亚经济体普遍人均资源短缺，供应压力较大，但另一方面它们的单位 GDP 能耗强度很大。其原因是多层次的。以中国为例，许多高能耗、低附加值的产业由于地方政府的集税冲动而得到了政策倾斜，节能往往是软指标，统计混乱，一般号召多，落实少，用能主体没有真正节能的驱动力。人们没有把节能作为自己的行为准则，在消费模式方面不加选择地模仿西方。此时，政府应该利用市场手段，切实评估能源使用的真实社会成本，给能源以合理的定价是其中的关键。

环境治理要从长远出发，力争根据跨期最优的逻辑经济地捕捉二氧化碳及其他排放物。如果说，二氧化碳等温室气体对环境的负面影响还可以通过多种途径得到自然的消解。而类似重金属沉积、水源地的富营养化、采矿区地陷以及 PM2.5 的弥漫则对欠发达经济体的损害更具持续性，善后的成本也更大。中国及许多东亚国家已进入中等发达国家的门槛，经历了不可避免的先污染阶段，痛定思痛之后，不能再走产业转移等于污染转移的老路。提高环境质量的估值权重，不能以损害几代人健康的代价获取眼前有限的现金流。

充分利用外部资源，保证资源产品和农产品的供应。由于全球资源市场的供应结构的变化，面临需求的增长，价格往往以更高比例地增长。近几年，诸如原油、铁矿石和各种有色金属均经历了历史最高的实际价格，增加了处于高资源使用强度阶段的中国及东亚经济体的发展成本。可以预计，在未来几年，世界资源价格或许还会屡创新高。适时地获取国际资源企业的股权以在世界范围内获得一定的资源份额，是改变自身禀赋，在国家层面的资产多元化的途径。中国由于某些体制上的原因，在这方面的经济成本特别高。今后，可以鼓励民营企业走向外部世界。东亚国家尤其是中国要避免狭隘的粮食或资源安全观念，多用市场手段来满足未来不断增长的资源需求。

2、文化和教育：持续亚洲奇迹的软约束

不同的文化产生不同的文明，文明的传播、文化的扩散肯定会对不同区域原本的文明或文化存在产生冲撞效应。虽然文化差异的主要原因在于产生文化的地理位置，但我们仍需要从时间脉络

的纬度来理解和分析文化演进与经济增长之间的互动效应。文化的核心载体应是人类活动有组织的体系，也就是广泛存在并影响着我们日常生活的各类社会经济制度。在历史的长河中，人们聚居合作、彼此交往，长期的互动产生一套特有的规则和技术组合。各地的人类活动系统也因此有组织、有秩序，且较为稳定，呈现出一定的规律和特征。寻根问源，一国采用什么样的经济制序和它的文化内质是难逃枝连的，即使实践的是共同的市场经济体制，各国的具体呈现形式依然特点纷陈。究其原因，是各国的文化差异使然。

在新古典的主流架构中，经济理论模型往往是抽象演绎的结果，但严密的内在逻辑仍需接受现实的社会考验，若不考虑应用的土壤和条件，则再完美的经济学还是会失去解释力和适用性，而文化恰恰是这片应用的土壤赖以存续的雨露。早在20世纪50年代，德国经济学家欧根就已经认识到，市场经济秩序的必要前提应包括一定的社会秩序、价值准则、文化观念，而且，市场经济的这种文化前提是无法通过一项改革措施来实现的。

从与现代市场经济发展的拟合度看，亚洲普遍存在的儒家社群威权主义文化是具有多面性的。首先，其文化内质强调的是“中庸之道”，不鼓励鹤立鸡群、独树一帜，也正因为这样，这一地区的创新性是普遍受到压抑的。由此，我们也更能理解为何中国可以在漫长的数千年农耕时代始终保持世界领先，却完全无力自发生成工业文明，除却种种制度理由不言，但就工业革命所必需的独立自主精神和持续创新要求，就远不是博大精深的传统文化所能兼蓄的。

其次，儒家文化鼓励“中庸”的特征，却是亚洲各国在学习型工业化道路上能实现有效追赶和高速增长的重要条件。在追赶工业革命先验的起步过程中，创新往往不是最核心的诉求，勤奋、节俭和守纪变得更加重要，亚洲文化的优势也由此显现，长期所倚重的“训练型”教育体系无疑加深了这一倾向。但随着持续性、区域整体性起飞的先后实现，以及网络时代全球化概念对国家疆界的冲击和重塑，创新首次成为了这个地区实现可持续发展难以或缺的要素，而如何突破传统文化的约制也就成为了一个无法回避的挑战。

最后，亚洲各国服从权威的文化倾向，以及近代以来的历史阴影，都使得民族国家的主权让渡和超国家一体化建设在这一地区变得尤为困难。亚洲、尤其是东亚中、日、韩之间，始终就缺少培育区域经济一体化的土壤，如何在全球多边贸易谈判长期僵滞不前、区域合作竞争性崛起的新环境中，推进区域一体化制度红利的获取，是制约亚洲经济持续高速发展的又一瓶颈。

总之，经济增长奇迹之后的亚洲面临着完成起飞的种种约束条件。其中不乏有许多是固有的短板，但由于经济发展阶段的演进，原先并不显著的缺陷突然变得愈加致命；也有一些是被重重烙上时代特征，与这个全球化、加速度转型着的世界经济环境相伴生的新约束。事实上，汇率和资源已然成为了亚洲完成经济起飞的重要硬约束，而文化和教育也是持续亚洲奇迹所需要面对的核心软约束。

三、亚洲经济实现可持续增长的关键与对策

1、亚洲的国际分工与经济增长模式

在受到此次全球经济危机的冲击时，亚洲各国，特别是中国，日本和韩国都出现了比预期更为深刻的出口下跌，其程度远远超出了凯恩斯主义所说的“当某个国家的内需中含有一定比例的进口，那么其内需下降时，会导致对该国的出口也会以一定比例下降”的程度。回顾 1990 年代以后的亚洲，基于生产环节的分工日趋细分化，为追求生产成本的最小化，跨国企业针对每一生产环节，尽可能地选择立地条件最合适的国家和地区进行生产。而伴随这种生产工程的碎片化的延展，区域外对亚洲地区制成品需求的增加，推动了区域内中间品，零部件贸易迅速扩大。

与传统的原产地统计方法不同，当我们对某商品在其生产环节中的属性进行区分，即分为中间品，最终品以及生产资料等不同特征的商品，对 1990 年点以后的亚洲贸易进行观察，首先我们可以发现，1990 年代后亚洲区域内的贸易急速扩张的同时，对域外的贸易也快速增加。从总量来看前者增长的程度远远大于后者。如果从产业的角度看，域内贸易的增加主要是由电子机械，通用机械类产品贸易增加带动的。而从商品属性的角度看，则反映出是由零部件和半成品贸易拉动的。零部件大多是机电类产品而半成品主要是石油化工类。因此可以说，中间品，零部件在域内各国之间的外包方式以及生产环节的细分化，促进了亚洲域内贸易的发展。1995 年之后，特别是中国加盟 WTO 后，伴随域内生产一体化的程度不断提高，域内贸易的成长率有所回落，对域外贸易的增长速度超过了域内贸易的增长速度。这主要是由于日本企业走出日本后，日本对域内贸易缩小而引起的。这跟前一个时期正好相对照。起到牵引作用的主要是中国对美国以及其他国家的出口增加。从产业的角度看该时期对域外的贸易增加主要是，以电子机械，运输机械以及玩具杂货类等生产资料和消费品的制成品为主。制成品占亚洲对域外出口总额的 60% 以上。

我们也注意到，亚洲地区从域外进口也表现出缓缓增加的趋势。进口品的大部分是零部件和半成品。因此我们可以说东亚地区的外包业务并非只是停留在区域内，与域外各国，特别是与美国之间也表现出以外包加工方式为主的特征，这无疑显示了价值链全球化的深入，并已经到达了相当的程度。总的说来，东亚地区针来自于域外的需求，发挥着巨大的加工工厂的作用。换言之则可以说域外需求对拉动东亚地区的经济增长起到了关键作用。同时，除了上述产业分工的生产波及效果以外，最近的研究还表明，东亚各国出口产业的生产力远高于非出口产业，进口的零部件和半成品与国产品之间也存在较大的生产力差距，但在价值链全球化的过程中逐渐体现出前者对后者的技术外溢效果渐趋明显。总而言之，外需依然是拉动亚洲地区经济增长的动力。而基于产业链和价值链的国际分工和贸易方式是进一步推进东亚地区经济可持续发展的主要动力。

2、外需依存体质及其脆弱性

如上所述，2000 年以来的亚洲经济增长的原动力可以说是，基于区域内国际分工生产网络，

以及对域外出口增加。然而此次金融危机的波及影响，将亚洲经济的这种对外依存体制的脆弱性表现无遗。一般来说，国际经济金融危机对亚洲地区的影响，会有两个途径，即国际资本流动，和国际贸易。本次的特征是国际资本流动对亚洲金融市场的影响较小，而通过国际贸易对域内实体经济的冲击很大。前者是因为在经历了 1997 年的亚洲金融危机后，亚洲各国在金融制度上趋向与安定，尤其是对本次危机的主要载体的证券化商品的持有额度不高，因此金融体系收到的冲击较为轻微。但是，通过国际贸易的影响，不仅反映在对欧美发达国家的出口减少，而且直接影响到了域内的实体经济。如前所述，2000 年以后，亚洲各国在产业链价值链的分工体系下，各自生产具有比较优势的零部件和半成品，而由中国承担加工组装成制成品，出口欧美。因此危机发生后，来自于欧美外需的萎缩，导致区域内贸易的减少，整体生产遭受打击，显示出亚洲经济外需依存的脆弱性。特别是外需占 GDP 比例高的国家，受到的波及程度更大。

比如，此次受此次危机的冲击的程度以及危机后的回复速度，在域内各国之间存在很大差异。其中中国尽管对外出口规模巨大，但与其他亚洲国家相比较，出口占 GDP 的比率相对较低，在大力度的景气刺激政策下回复较快。而新加坡，香港等出口比率高的国家和地区回复就相对缓慢。值得关注的是，在中国的内需刺激政策下也相继在半年后即出现了恢复的迹象。因此，今后如何从外需依存体质，通过域内最终商品的贸易增加以及欧美以外国家和地区的出口增加来减少受欧美经济波动而导致的外需影响，对亚洲未来的增长十分重要。与 EU，NAFTA 等其他区域相比，亚洲面对区域内的最终商品出口比率较低，其背后的所折射的原因之一，是亚洲各国的收入差距较大，需求结构差异较大。另外也存在市场成熟度的差异，以及国内外制度上的障碍，比如关税和非关税壁垒的贸易保护主义的影响。这些因素，不仅影响区域内生产网络的进一步紧密化，也制约着区域整体的对外竞争力的提升，更为重要的是会影响区域经济增长的活力，阻碍从外需到内需转化的进程。

3、内需的可能性及问题点

亚洲的人口占全球人口的大约三分之一，同时随着近年来经济的持续增长，人均收入水平也在不断提高。具有一定的消费能力的中间收入层（年平均 5000 美元）正在逐步形成。根据 OECD 的预测在未来的二十年来，亚洲的中等收入人均会翻番，因此有一种乐观的人为是亚洲区域的内需具有巨大的空间。2008 年的危机后，亚洲各国也相继通过对汽车，家电以旧换新等补贴，或是通过减免税等刺激内需。其中中国的内需刺激政策力度最大，尤其表现在基础建设的投资增加，带来的进口增加，为亚洲乃至于世界经济的回复起到了一定的作用。但是值得注意的是，危机后的一系列直接刺激域内消费的政策，其效果仅仅是一种短期现象。个人消费的扩大与区域经济的持续增长相结合的前提，必须是收入持续增加。从中长期的角度看，这就要求我们努力克服抑制消费支出的问题，比如如何消除收入不平等，以及完善社会保障体系等。

亚洲各国的可支配收入的分布差异很大，特别是中国，印度等将近占了亚洲人口 3/4 的这些国家，低收入人均的比例很大。一般来说，随着收入水平的增加，基础消费（衣食住行，医疗等生活

必需品)以外的消费(娱乐,奢侈品等)的比例会越来越大,因此如果能推动低收入人均的收入增加,无疑亚洲的域内消费扩张具很大的可能性。但问题是,亚洲各国都存在阻碍消费扩大的种种因素。其中最为重要的有收入差距问题。比如中国的农村和城市之间,各省之间,以及城市内都存在收入差距不断扩大的问题。而在泰国,菲律宾,印尼等国家则存在着产业集聚地与非集聚地区之间的收入差距扩大现象。因此,除了收入平等的自身的问题以外,从消费扩大的角度来看,占了绝大多数人口比例的中低收入阶层,收入难以顺利增加,这必然会阻碍消费购买力。以中国为例,农村地区的耐用品普及率迟迟上不来。因此,如何实施相关的政策缓解收入差距以唤起潜在的消费能力,至关重要。另外,在亚洲,社会保障制度以及金融制度十分完善的国家也不多见。购买住房的支出,教育资金等都倾向于个人储蓄,对将来的不确定性,比如防止疾病大病的医疗费,失业等也会增加个人的储蓄倾向,而抑制消费。比如中国城市部的储蓄率随着经济增长出现了持续增加的现象。菲律宾在2000年以后,消费增长高于储蓄,其背景是社会保障体系的完善,但总体来看,其他大多数亚洲国家,养老保险,医疗保险等社会保障体系的尚不完善,覆盖范围也十分有限,因此即使收入增加可能,但增加的大部分会流向储蓄而非消费。因此,完善制度无疑是内需扩大的重要保证。

另外,亚洲的内需增长堪忧的原因还有源自于亚洲各国经济的结构性障碍。特别是劳动力市场的二元结构难以消除。大量低素质劳动力无法直接参与价值链的中高端行业。结果是一部分中高端产业工资上升较快。同时因为低端产业生产率上升缓慢,而形成工资上涨的压力,使亚洲的低端行业失去国际竞争力,对非熟练工人有挤出效果,导致就业机会减少而内需不旺。

4、对策及建议

综上所述,在内需拉动尚未成熟的情况下,外需依然是拉动亚洲经济增长的主动动力。因此供给的角度来看,亚洲地区要维持和扩大对域外的出口,需要在继续发挥要素禀赋优势的同时,一部分产业积极参与产业链价值链分工体系,从要素驱动转移到效率驱动,推动产业的高端递进。

从理论角度看发展中国家参与国际分工存在价值链递进的内在机制。主要是体现在可以突破“资源禀赋”的先天条件而形成基于要素成本和交易成本的新的综合比较优势。在工业化初期阶段,因人力资源,基础设施等的不足,产业发展往往依赖于资源禀赋条件,经济增长模式在于充分发挥资源禀赋条件的比较优势,大投入大产出(粗放型)。但随人力资源的积累,生产效率的提高可以抵消[要素成本]上升的压力,而基础设施及社会资本的普及可以降低交易成本,因此可以突破资源禀赋的瓶颈。根据贸易理论的解释,分工而产生利益的途径是,通过专业化提高效率并通过交换使双方获益。而在价值链分工中,还可以通过上下游供应链的相互传导,获得“学习效果”以及“技术外溢”所带来的技术积累和技术进步的收益。因此企业追求利润最大化的合理经济行为也是产业链价值链高端递进的内在动力。其次从历史的经验看,如韩国和台湾的发展过程也给我们提供了价值链高端递进的路径和成功经验。

但必须强调的是,这里隐含着几个前提条件,那就是:人力资源是否积累到一定程度,技术

进步是否有效（与要素成本相关），以及基础设施和社会资本是否到位（这里包括，物流网，电商网，以及相关的金融制度等服务行业），在国际分工的情况下还要强调的是国际贸易投资规则对其是否有利（与交易成本相关）。另外，在其他条件相似的情况下，交易成本的降低对提高国际竞争力十分重要。如果说低端产业的发展主要是要素驱动的，那么中高端产业主要靠的是效率驱动。效率驱动的高端递进可以通过效率提升克服工资上涨的压力，是良性的收入增加方式。但必须考虑到亚洲地区的资源禀赋条件仍然是大量低素质劳动力的存在，因此，我们的未来战略必须是低端不弃，高端递进。这两者如何兼顾，是维持和扩大亚洲地区对域外出口的基础，也是扩大内需的前提。

可以预计的是受亚洲各国经济结构扭曲，以及制度缺失，市场不完善等限制，在短期内难以顺利扩大。刺激内需的关键并不是针对存量产业工人涨工资（工资深化），因为成本上升会削弱我们的竞争力，而且这一部分的涨工资并不能有效刺激基础消费。特别是对于低端行业的政策目标应该不是提高工资，而是增加领工资的人（工资广化），也就是创造更多的就业机会。而增加领工资的人就涉及区域内的国际贸易和投资规则的重构。通过亚洲各国的共同努力，加大步伐推进自贸区的建设，并通过金融体系改革构建新的国际投资规则，让资本有选择的在不同的国家和地区，融入由低到高价值链分工的产业中，提高生产力。比如，日本作为代表亚洲产业链高端的国家，通过自贸区等建设的共同努力，使其积极回归亚洲产业链价值链，引导中低端产业的高端递进，但同时坚持低端不弃以继续发挥要素禀赋的比较优势，扩大低端产业的规模来解决就业问题，自然而然会拉动内需。这一点如果能够做好，亚洲地区在未来五年、十年还有增长空间。

由此可见，亚洲经济增长的根本特征是，外需过度依存体制下的内需不旺。其背后原因首先在于亚洲各国的市场成熟度不同，国际国内制度的缺失等所导致的劳动力素质的两极分化，以及收入差距的扩大。其次，价值链产业链国际分工体系的深化，伴随着工资上涨得压力。因此一旦外需出现萎缩，则易陷入了低端均衡被打破，而高端均衡又暂时无法实现的困境。突破的关键只能是实际人均收入的增长。为了实现这一目标，我们的基本政策建议包括以下几点。

第一，在内需不旺的情况下，依然需要与欧美等发达国家共同通过推进国际贸易和投资规则，从制度上保持和推进亚洲地区与其他地区之家的国际分工体系的进一步深化，同时，对内通过制度的完善，金融体系的一体化，提高自身的效率，提升对域外出口的竞争力。

第二，在融入价值链分工体系中，通过效率驱动产业链的高端递进，实现分层次的工资深化，同时，发挥低素质劳动力的比较优势，扩大产业规模增加就业机会，实现工资广义化并推进城市化，以培育内需市场。

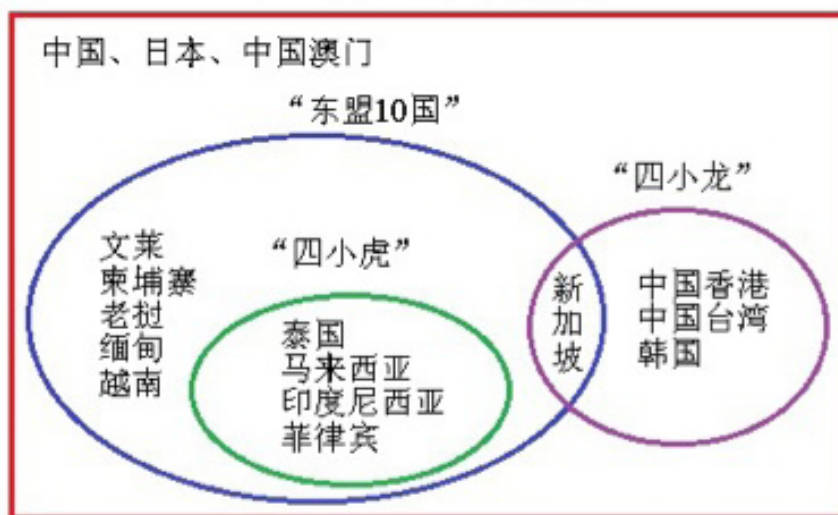
第三，坚持适度低估的实际汇率水平也应该是中国及其他后进东亚国家明确的政策目标，即使有些成本也在所不惜，在条件成熟时，亚洲国家间尤其是与欧美国家间应大力发展自由贸易区，努力降低国际贸易的成本，为替代相对高成本的汇率政策做准备。

第四，面对资源瓶颈，需要开源，更要节流。未来的发展目标应该是适中舒适程度和低能耗模式。政府应该利用市场手段，切实评估能源使用的真实社会成本，给能源以合理的定价是其中的关键；

环境治理则要从长远出发，力争根据跨期最优的逻辑经济地捕捉二氧化碳及其他排放物，同时需充分利用外部资源，保证资源产品和农产品的供应。

最后，亚洲各国同样需要不断自省其文化现代化的现实需要，在教育体系和社会制度中注入对于创新理念的尊重和保护，以夯实并扩大社会竞争力提高的微观基础。

附录：本部分重点关注的亚洲经济体



注：本部分重点关注东亚与东南亚的主要经济体地区，包括中国、日本、亚洲“四小龙”（包括中国香港、韩国、中国台湾和新加坡）、亚洲“四小虎”（包括泰国、马来西亚、印尼和菲律宾）及其他东盟经济体（东盟10国包括文莱、柬埔寨、印度尼西亚、老挝、马来西亚、缅甸、菲律宾、新加坡、泰国、越南）。

解开全球金融动荡的谜团： 国际资本流动与安全资产的缺失

孙立坚¹、吴金铎²

[摘要]

自2008年金融危机之后，每当世界发生意料之外事件时，市场都会出现“大量资本流回美国资本市场、并追捧美国短期国债”的“避险”行为，从而造成美元升值、美债价格暴涨、债券收益暴跌，而非美货币、甚至包括美国本土在内的其他资产价格反而迅速回落。随着主要发达国家广泛采取量化宽松的货币政策，而且量化宽松的力度越来越大，突发事件所产生的价格破坏效应将越来越明显。于是，这种逐渐普遍的现象给中国在内的新兴市场国家带来了很大的麻烦：一方面，突发事件产生的国际资本的大量流出，会造成中国等新兴市场国家货币的“投放量”突然增加、物价和宏观经济的稳定受到干扰；而另一方面，股市的资产价格反而受周边下跌市场的拖累不断下滑，给个人的财富管理、企业的投融资行为以及央行的货币政策都带来了不可忽视的影响。本研究正是基于这一问题而展开的，正确揭示这种现象背后的原因，无论对于市场风险的防范，还是国家金融发展战略的制定，都具有重大的理论和现实意义。

当今微观主体和各国政府对财富管理“安全性”的要求，比过去金本位时代显得更为迫切，标准也越来越高。以前，当经济走进通货膨胀的状态或接近通胀可能性时，市场主体会很自然倾向于持有黄金这种“安全资产”以规避风险。今天，同样当影响财富安全的事件发生时，人们也会去争抢类似于“黄金”那样的安全资产。然而，当今世界大量需要安全资产的国家不能提供安全资产来满足市场需求，新兴市场经济国家崛起，大量的贸易顺差导致安全资产的需求越来越大。金融危机导致以往安全资产信用评级的下调，加速了安全资产的流失和蒸发。而广大的民间金融机构加大了对安全资产的开发，使大量金融机构的“金融创新滥用战略”有机可乘，带来金融创新工具的滥用。因而，当前世界金融市场面临的矛盾是日益增长的对安全资产的需求的增加和有限且不断

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² 吴金铎（1984.6--），女，经济学博士，复旦大学经济研究中心博士后。

减少的安全资产供给之间的矛盾。未来中国金融的发展要为中国经济的转型和产业链定位的优化等实体经济面做出应有的贡献，本研究认为应从企业家金融，供应链金融，关系型金融，财富金融，消费金融，消费金融，全球化金融，政府金融，国家金融等金融业务模块出发，更好的实现金融服务实体经济。

[关键词]：安全资产；“非传统”量化宽松货币政策；金融服务实体经济

自 2008 年金融危机以后，人们逐渐注意到一个越来越明朗的事实：当世界发生意料之外的事件时，无论这个问题发生在美国本土，还是在其他国家与地区，都会出现“大量资本流回美国市场、并追捧美国短期国债”的“避险”行为，从而造成美元升值、美债价格暴涨、收益暴跌、而非美货币、甚至包括美国本土在内的其他资产价格反而出现迅速回落的现象！随着主要发达国家广泛采取量化宽松的货币政策，而且量化宽松的力度越来越大，突发事件所产生的价格破坏效应将越来越明显。于是，这种逐渐成为“常态”的现象给中国在内的新兴市场国家带来了很大的麻烦：一方面，突发事件产生的国际资本的大量流出，会造成中国等新兴市场国家货币的“投放量”突然增加、物价和宏观经济的稳定受到干扰；而另一方面，股市的资产价格反而受周边下跌市场的拖累不断下滑，给个人的财富管理、企业的投融资行为以及央行的货币政策都带来了不可忽视的影响。本报告正是基于这一问题而展开的，正确揭示这种现象背后的原因，无论对于市场风险的防范，还是国家金融发展战略的制定，都具有重大的理论和现实意义。

实体经济最终的发展目标是为了提高人们的生活质量，追求社会福利最大化；而货币政策和与之有关的金融服务是为了确保微观主体的投资和消费活动能够可持续有序地发展。但是，自从布雷顿森林体系解体以后，世界经济告别了“金本位”主导的自律的货币增长时期，取而代之的是一个完全靠信用体系支撑的时代。于是，当经济繁荣时，尤其是在世界金融体系全球化背景之下，一国的货币供求水平很容易出现增长过度的情形。在信用支撑的体系下，国家和个人的财富价值是以货币的购买力为基准来衡量的，如果经济发展的速度跟不上货币和信用增长的速度，那么就很容易产生资产泡沫和通货膨胀——前者埋下了未来资产泡沫崩溃所造成的财富价值缩水的隐患，而后者则带来当前购买力下降的后果；相反，在经济萧条时，人们对风险的厌恶态度会导致他们采取更为保守的投资和消费行为，于是，社会对流动性偏好的增加，会导致大量的社会资本被闲置下来，无法转化为实体经济部门的产业投资。于是企业产出下降，利润进一步下滑，工人工资收入无法提高，财富收入也随之减少，经济萧条的格局进一步恶化。总之，不管出现哪一种情况，都会损害到从事实体经济的劳动所得以及财富积累的总体价值。

因此，当今微观主体和各国政府对财富管理“安全性”的要求，比过去金本位时代显得更为迫切，标准也越来越高。以前，当经济走进通货膨胀的状态或接近通胀可能性时，市场主体会很自然倾向于持有黄金这种“安全资产”以规避风险。今天，同样当影响财富安全的事件发生时，人们也会去争抢类似于“黄金”那样的安全资产。然而，当今世界大量需要安全资产的国家不能提供安全资产来满足市场需求，新兴市场经济国家崛起，大量的贸易顺差导致安全资产的需求越来越大。金融危

机导致以往安全资产信用评级的下调，加速了安全资产的流失和蒸发。而广大的民间金融机构加大了对安全资产的开发，使大量金融机构的“金融创新滥用战略”有机可乘，带来金融创新工具的滥用。因而，当前世界金融市场面临的最大矛盾是日益增长的对安全资产的需求的不断增加和有限且不断减少的安全资产供给之间的矛盾。

今年上海论坛金融分论坛云集了国内外顶级的金融专家和政府智囊团研究员以及政策决策者，共同探讨危机管理所需要的“安全资产”选择的问题和后危机时代世界经济繁荣发展过程中“安全资产”所应发挥的重要作用。本文结构如下：第一节，回答我们为什么需要“安全资产”；第二节，深入分析“安全资产”供求的失衡结构及其影响；第三节，确保“安全资产”重要地位，政府所应发挥的作用是什么？尤其是需要深入剖析当前美、日等发达国家所采取的非传统量化货币政策对“安全资产”的作用所产生的正反两方面的影响。最后，以中国和亚洲共同面对的、全球“安全资产”缺失的现状，提出我们的一些政策建议，以提高这个地区规避由此造成的金融风险的能力。

一、我们为何需要“安全资产”？

事实上，根据不同的经济主体，对安全资产需求的动机完全不一样。

首先，众所周知，德国、日本、中国等以制造业生产和出口为主的国家，创造了大量的海外资产，而像中东、俄罗斯等石油输出国也在靠出口资源赚得的大量外汇，这些国家都在寻求流动性好、价值储备能力强的安全资产。事实上，长期以来，美元及美国短期国债就充当了“信用本位”时代全球的海外“安全资产”！

其次，对于银行来说，银行间的同业拆借和其发放贷款所需要的资本充足物和抵押资产都需要具备较高的安全性，这也是审慎性监管的要求。事实上，银行作为实体经济的重要支撑，在全球经济复苏中将发挥重要作用，若不能持有有一定规模的安全资产，那么，银行抗衡各种金融风险、来确保实体经济健康发展的资源配置能力就会受到很大的限制。某种意义上说，银行本身也在为广大储户提供受到国家保护的“安全资产”服务。

第三，作为市场投资者来说，“安全资产”是他们对风险资产定价的参照物，因为风险资产的价格是以无风险资产或安全资产的价格为基准在加上风险溢价后形成的。如果没有安全资产作为锚定物，或者过去作为“安全资产”的标的，本身今天就存在太大的风险，这将给股票市场，债券市场等资本市场的投融资活动带来更多不确定性因素，最终会大大降低一个国家资源配置的效率。

一般而言，人们追求“安全资产”的原因，就在于它表现出来的、与其他金融资产的收益和风险属性完全不同的特征：很高的信用和较低的市场风险；而且，流动性好，通胀风险可控，甚至汇率风险也较低，尤其是非系统性风险爆发时它还可以起到很好的分散作用。

在信用本位的时代，一国自己的安全资产往往锁定在“信用级别”最高的政府债券上，比如，在过去日本经济萧条的二十多年中，越来越严重的老龄化和少子化倾向，已经促使其民众对安全资产的需求（流动性偏好）达到了不可理喻的地步，大多数人都把钱存在了政府提供流动性保障的银行体系内，而不关心它们存放的资金使用的效率好坏，即日本民众今天只关心自己财富的兑现能力，

而从不关心财富投资的收益回报状况。但另一方面，日本银行业面对本国企业缺乏投资意愿，消费者过度流动性偏好的资产选择态度，不得不也把他们资金运作锁定在安全资产的投资上，于是，在日本国内最高信用等级的资产、流动性最好的资产就是日本国债——这就是我们看到的一个奇怪的轮换：日本贸易顺差越大、日元升值就会过快，倒逼央行干预汇市的力度就越大，从而导致银行的储蓄就会越高、而银行购买国债的需求也就会越大。这就很好的解释了为什么日本财政赤字那么庞大，破产的风险却没有像欧猪五国那样严重的理由！

但是，像中国这样对外依存度较高的国家，一方面，政府外汇储备的保值增加了我们在目前美元主导的国际货币体系中对美债这个“安全资产”的依赖，所以，当全球国际资本需要避险，大量回流、冲击美国本土债券市场的价格和收益时，中国就会深受其害。而当美国政府为了解决本国失业和资产价格低迷的现状而采取非传统的量化宽松货币政策的时候，中国的外汇储备价值又失去了应有的安全性！另一方面，由于国内“债市”发展缓慢，再加上其市场化程度低，所以，大众对安全资产的需求无法得到充分的满足，从而厌恶风险的心态就会造成股市换手率高、价格波动性大的不稳定现象，相反，与此对应的是，国内资源稀缺的市场，却暂时充当了“安全资产”的投资渠道，比如，一、二线城市的房地产市场，由于资金带动价格上涨的效应非常明显（尤其是国内货币增长过快的时候，大众通胀预期强化，从而“物以稀为贵”的内在规律更助长了这种“投资理念”），再加上政府让房地产市场“软着陆”的意图又十分清晰，于是，房地产投资的“安全性”就被抬高了，这种房地产属性的“错位”形成，严重影响了今天中国实体经济的健康发展。

二、“安全资产”供求失衡的挑战

综上所述，在健康的经济环境下，“安全资产”的构成是由以下几部分组成的：一是指获得AAA 信用评级的发达国家的主权债资产和高等级公司债资产，二是由一国政府发行的国债和政府信用担保的银行发行的存贷凭证。根据国际清算银行 (BIS,2012) 提供的资料，我们可以得知：全球可市场化交易的潜在安全资产主要由 AAA/AA 级 OECD 发达国家的政府债券组成，它占有潜在安全资产的 45%，而其他高信用级别的 ABS/MBS 等其他的资产证券化资产，目前占有安全资产的 17%；然后是黄金占有安全资产的 11%，公司债券占 11%，A/BBB 级 OECD 国家的政府主权债券，占有潜在安全资产的 7%；美国的机构债券占有潜在安全资产的 3%（见图 1）。



资料来源：Bank for international settlements；Dealogic；the European Covered Bond Council(ECBC)；SIFMA(the Securities Industry and Financial Markets Association)；Standard&Poor’s, World Gold Council；and IMF staff estimates.

但是，从国际货币基金组织最新的调研报告中，我们又注意到这样的事实 (IMF,2012)：金融危机爆发以来，全球 3A 级国债规模缩水超过 60%。自美英法三国纷纷被剥离“A”级评级后，人们眼中的安全级“国债池”已经大幅缩水，总价值从 2007 年初的 11 万亿美元暴降到 2011 年的 4 万亿美元，这轮降级潮使得国际资本不断涌入新兴市场。发达国家 AAA 级自主债券由危机前的 68% 下降到危机后的 52%，发展中国家 AAA 级主权债务十分缺乏，即使是评级较高的 AA 级债券危机后比例由 10% 提高到 15%，但是 A 级主权债务由危机前的 25% 下降到危机后的 17%（见图 2）。这样的变化给今天安全资产的市场带来了严重的供求关系失衡的矛盾。造成当前全球安全资产短缺的主要原因在于：

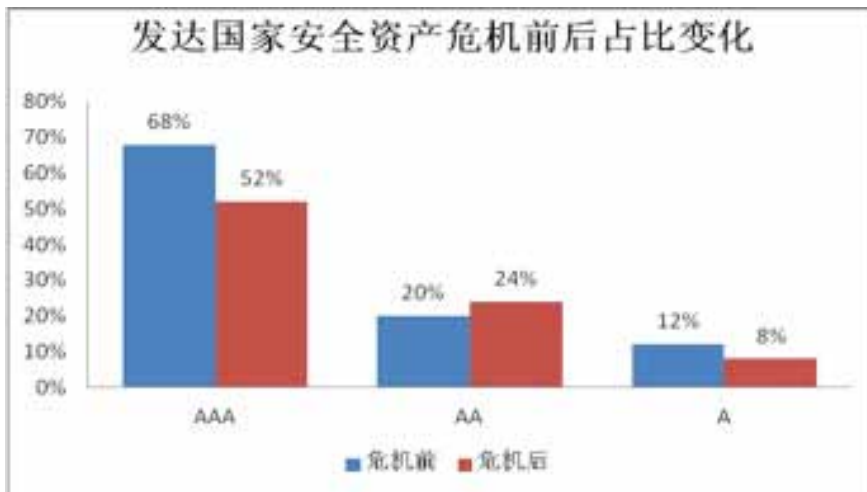


图 2 发达国家安全资产危机前后占比变化

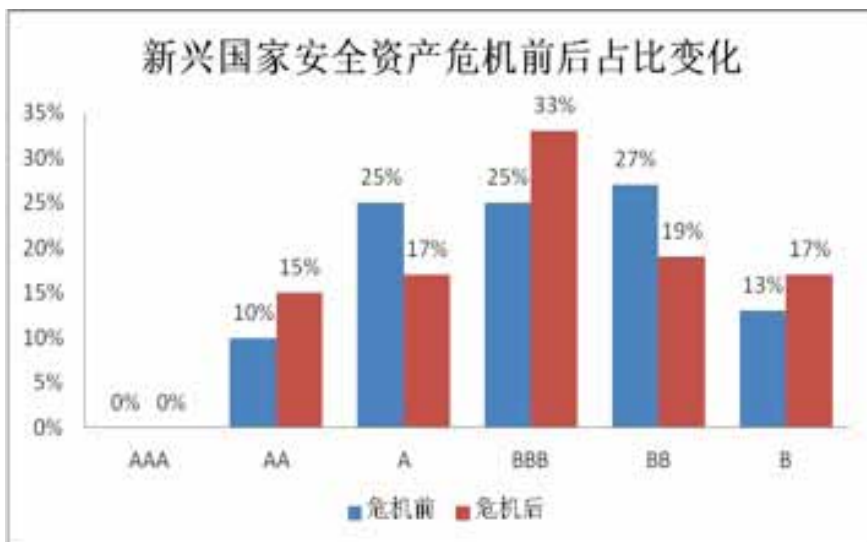


图 2 新兴国家安全资产危机前后占比变化

数据来源：IMF staff estimated based on S&P rating of 25 advanced economics and 48 emerging market economics.

一是新兴市场国家和产油国增加外汇储备，因为缺乏投资消化的渠道，今天不得不主要投资于高流通性的发达国家的国债，尤其是全球外汇储备持有量最多的中国，受到了发达国家出于“国家安全”的需要所设置的投资壁垒的影响，使得对美债的需求人为地“被”强化了！

二是海外政府部门和金融机构转变了过去对私人安全资产的投资方向，转向了高信用等级和高流通性的发达国家的国债；最近的一些研究表明，由于私人资本在危机爆发后的信用担保能力下降以及它们“逐利性”的行为方式造成了对安全资产的管理上的不透明问题，所以，市场大量甩卖私人机构提供的“安全资产”行为，也迫使它们丧失了应有的负债能力和与之相关的分散风险的市场组合能力。

三是金融危机引发的主权信用评级普遍下调的现象。金融危机之后，国际信用评级机构对各国政府发行的债券和债务偿还能力与偿还意愿程度评价的降级，以及对实体或虚拟交易相关风险评级的拉高。美国和欧洲的信用评级的下调导致国债资产的安全性降低，正是在这样金融市场约束与抑制不明朗的背景下，投资者的风险厌恶情绪不断加剧，市场规避风险的偏好加大。投资者对传统的安全资产的安全度大失所望，寄希望于新的安全资产来作为避险投资。

四是各国监管部门在危机爆发后都立刻提高了防范金融危机传染效应放大的监管标准，由于对增加安全资产的监管要求过于严厉，造成金融机构的安全资产需求很不稳定；一方面，金融机构不得已会变买自己的高收益资产来增加安全资产的比例，而另一方面，为冲销在危机中已经发生的不良资产需要更多地收益回报来弥补，于是，当监管暂时减弱的时候，就会增加银行短期追求高风险投资的可能性。在这方面，反而新兴市场对金融机构的监管更为强烈，更为持久，从而导致他们对安全资产的过度需求更为明显。

另一方面，安全资产的供给自身能力的萎缩，也是造成今天其供求关系严重失衡的重要原因之一。

长期以来，美国国债是被认为具有高流通性同时也被广泛用作借款担保的资产，即使金融市场出现混乱也可以避免遭受巨大损失。美元因有美国这样一个强大的经济载体做依靠，并且处在全球货币的霸主地位，也同样被投资者视为最后的“安全资产”。过去长达半个世纪的时间里，美国国债充当了全球金融资本的避险港湾。由于集安全性和流动性于一身，美国国债得以成为国际银行全球融资的主要工具，而且美元也成为各国外汇储备资产中的主要品种，美元信用在国际贸易融资和结算中所起的作用远远超过美国在国际商品交易中的市场占有量。但是，美债的供给毕竟受到它自己的财政纪律和货币稳定要求约束无法满足危机后人们对安全资产的需求，于是，安全资产价格过度的上升导致了市场摆脱系统性风险的能力受到了严重的限制。

再者，随着新兴市场持续崛起，美国经济在全球的比重将不可避免地降低，这也会削弱美国随心所欲供给安全及流动资产的能力。美国财政部其偿债能力将受到其收益能力的限制，而收益多少在任何情况下都取决于美国经济的相对规模。随着新兴市场贸易增长的幅度超过美国，美国财政部供给安全及流动资产的能力的增长将不可避免地落后于全球贸易规模的增幅。如果美国不着手解决迫在眉睫的“财政悬崖”的挑战，其后果将更严重。由于美联储在支撑着美国国债市场，美国可能不存在违约的风险。但如果当前形势不发生改变，美国主权债券的价值将难以一直维持下去。如果美国国债无法向投资者提供他们想要的安全性，就不能充当国际银行融资过程中所要求的稳定抵押品。美债作为国际储备的一个品种，也将失去其原有的吸引力。

第三，由美国政府信用支撑的私人机构提供的安全资产，也因为美国政府自身的财政赤字问题，导致其“安全程度”不断下降。同时，危机后，由于对金融创新活动的管制，以及强化对道德风险行为的监管等，安全资产的私人部门提供能力在不断下降。事实上，2007年由美国次贷危机引发的全球金融危机以及2010年欧洲的债务危机，彻底颠覆了人们对“零风险资产”的认识。随着公共和私人部门创造安全资产能力的下降，安全资产的供应不断收缩，全球安全资产将不断减少。因而目前各国政府都在大量救助私人部门，以期它们能够重新向社会提供安全资产的服务。但目前解决问题的关键手段，不应该是提高安全资产的“数量”，而是各国政府应该确保安全资产的“质量”。

今天，世界金融市场中，安全资产供求关系失衡导致金融体系的动荡无法彻底收敛，相反，安全资产选择的机会成本却在不断增加，为争抢“安全资产”市场的“挤兑行为”也可能会随着意想不到的事件发生而加剧。那么，跟政府的财政和货币政策表现得好坏程度密切相关的“安全资产”质量，该如何通过政府这个“看得见手”来提高呢？我们接下来讨论一下发达国家正在采用的“非传统货币政策”的积极意义和消极意义。

三、“非传统”量化宽松货币政策的“双刃剑”作用

2012年12月13日凌晨，美联储麾下联邦公开市场委员会(FOMC)决定推出新一轮量化宽松的货币政策(QE4)，以解决正在面临“财政悬崖”对美国“安全资产”供给能力构成的巨大挑战所可能导致的美国经济陷入长期低迷的问题。这一举措，把推出非传统的量化宽松货币政策的巨大“紧迫感”又提高了一个台阶，它主要体现在以下几点：

首先，经历了2008年百年一遇的金融危机后，美国企业和金融机构以及家庭的资产负债表不断趋于恶化，摆脱危机所需要的正常的投资和消费动力受到了很大的制约，若最后美国经济跌入“财政悬崖”（美国参众两院达不成妥协的共识——即共和党坚持要给富人减税，民主党坚持推进保障性支出的承诺），那么，这会给美国各经济主体已经在危机后变得日益紧张的生存空间更是雪上加霜。也就是说，在美企业将额外承担近6000亿美元的税务负担！由此导致美国经济增长下滑1-2%！

其次，金融危机后市场流动性状况急剧恶化，资金成本随着持有安全资产的比例不断下降，

而未来不确定性的预期不断上升，从而变得更加昂贵。这从另一方面也遏制了企业投资的能力，使得失业问题从根本上解决就变得更加困难。

第三，经济低迷遏制了企业盈利能力的上扬，而财政政策通过减税等降低成本的救市手段，在巨大的财政赤字和财政悬崖问题面前也无法正常的施力，由此带来的失业问题更加会增添国家福利的负担，于是，创造就业机会，通过恢复经济增长来吸收就业的问题就变得日益紧迫。所以，在这样的美国经济背景下，美联储刻不容缓的推出了 QE4，这顺应了市场对美联储货币政策的期盼，一定程度上在短期内会提振美国社会的信心。但是否会带来让美国就业市场全面进入复苏状态，美国经济是否会摆脱通缩的格局，还要看这轮货币政策所追求的效果是否能够有效地显现出来。具体判断的依据来自于以下几大方面：

一方面，让反映市场资金成本和风险态度的收益率曲线在这轮量化宽松的货币政策指导下向下扭转（时间轴效果），以提高安全资产的“质量”和“数量”，从而让它们来缓解市场流动性不足、金融资产和商品价格破坏所造成的企业投资信心不足的问题。这次美联储继续延续前一轮扭曲操作和 QE3 时期购买长期国债（每月 450 亿美元）、住房抵押贷款证券（每月 400 亿美元的 MBS），使影响劳动力正常移动的家庭房地产价格能够明显反弹，从而降低社会大众寻找就业的机会成本和减少持有不良资产和负债所给家庭、企业和金融机构带来的负面影响。

另一方面，这次没有再起短期债券的销售计划，而是继续维持超低利率格局下量化宽松的货币环境（流动性效果），这向市场释放了美联储增加基础货币（更为安全的资产），以确保各类经济主体都能享受充足的流动性供给环境这样一种强烈的扩张信号。并且，把这种意图通过锁定明确的就业（失业率要达到 6.5% 以下）和物价（通胀率要达到 2% 以上）目标来提振市场的信心，避免以往对未来经济不确定预期情况下所引发的“流动性陷阱”问题——即央行货币政策再怎么去积极刺激经济，也不会出现丝毫改善局面的积极效果！

再者，美联储在不断探索与市场预期协调的货币政策实施路径（协调性效果），努力提高在“零利率”货币政策环境下依然能够摆脱日本经济在本世纪初所遭遇到的“流动性陷阱”的困扰。事实上，从 QE2 开始，美联储就不断调整货币政策的规模、速度和美联储主席的喊话内容，“扭曲操作”是这一思路的典型反应，在释放长期低利率、提高安全资产“质量”的信号同时，又表达出美联储是在关注失业率和通胀率双重指标基础上，在“有的放矢”地进行量化宽松。所以，市场的消化和理解程度比其他发达国家同样的量化宽松货币政策要来得高，效果也较明显。

尽管上述三点是这轮量化宽松货币政策的最大“亮点”，但是，在经济全球化的环境下，会带来许多不可低估的后遗症：一是美元在国际货币体系中占有不可替代的举足轻重的地位，若美国实体经济短时间无法吸收瞬间增长的流动性，逐利性的资金会大量流出美国，从而造成国际投资和贸易的交易条件极不稳定，世界经济更加趋于萎缩，这反过来也会给美国经济蒙上阴影。二是美元这种国际货币的流动性泛滥会抢占稀缺资源，尤其是当新兴市场经济出现复苏苗子的时候，金融资本更会炒高资源价格，使得本来不具备安全资产特征的市场，也因为资金过于集中所产生的“抱团

取暖”的效应，把它的“安全性”人为地在短期内“创造”出来了，而实体经济繁荣的代价却变得更为严重。中国目前的发展阶段还将会使得我们以投资为主导的经济增长方式无法改变，于是，美国的QE4政策，确实就会通过输入性通胀影响到我们企业的利润和中国实体经济的市场生存空间。三是美元泛滥会以游资的方式进入到金融体系发育不良，大众储蓄较为集中，而实体经济的投资渠道还没有完全打开的新兴市场国家中，从而造成这些国家外汇占款增加、本币升值、通胀压力膨胀和资产泡沫严重的格局。

总之，美国新一轮量化宽松货币政策，能否利用美国金融体系安全资产比例的提高，将流动性配置到今天美国政府所扶持的未来产业发展的舞台上，而不是以短期投机资本的方式去干扰其他发展中国家的结构调整，这将不仅决定美国经济恢复的代价有多大（如果一切顺利的话，2015年美国经济增长将恢复到3.5%左右，届时量化宽松货币政策QE4会“圆满退出”），而且，也将影响到未来全球经济健康发展的格局。

当然，我们并不认为今天日本央行总裁黑田东彦的货币政策东施效颦，学美国非传统的量化宽松货币政策就会出现奇迹，产生长期有效的影响。因为正像我们前面提到的那样，它和中国目前通胀预期强烈的基本面有本质的区别，更与美国基本面良好、但资产价格表现过低的状况不同。所以，仅仅把改革的“助推器”放在用量化宽松的货币政策来修复人们对通胀的预期上，并就此能期待可以用它来彻底解决日本经济长期低迷的结构性问题，可能是过于乐观了。相反，它所带来的流动性泛滥的后果会严重干扰日本政府正在全力以赴所推行的结构调整战略。

四、在发达国家“修复安全资产”的环境下我们该如何应对？

中国和其他亚洲国家经济增长放缓的根源和美国不一样，尽管我们的经济今天都处在低谷阶段，但美国的主要矛盾不在于经济基本面的结构性问题上，而在于金融危机破坏了经济运行所需要的正常的价格规律上，美国的技术创新、金融财富创造的能力仍然大部分完好无损。只要安全资产的价格修复了，金融体系配置资源的能力重新恢复，那么，美国经济仍然表现出它强大的竞争力。所以，他们今天不顾发展中国家所可能遭受的负面影响，一味坚持采取非传统的量化宽松的货币政策，就是为了修复它们的“安全资产”被破坏的价格体系。

与此相对比，我们的问题是发展阶段和增长方式所共同造成的结构性问题，其次才是安全资产的缺失问题，尽管地方债的信用问题和房地产市场的流动性问题今天都大大降低了银行所提供的安全资产的服务能力，但是，它不可能用单纯的货币增发方式来把风险“整体”消化。

退一万步说，即使美国货币政策也不能解决他今天所面临的高失业的问题，但其造成的副作用要比我们小很多。因为我们不是国际货币，无法通过超发货币来促成自己货币对外贬值，以提升本国对外的国际竞争力，相反，在今天全球宽松货币的环境下，我们再加入到这场“货币大战”中的话，就会造成国内通胀现象更为严重。这一点美元、欧元和日元的状况和我们有本质的不同：它

们的货币泛滥并不一定就马上与国内的通胀和资产泡沫联系在一起，而是给其他发展中国家，尤其是像中国这样的新兴市场国家，因为社会大众对资产的“安全性”更为关切，而我们却又缺乏能够充分分散风险的金融体系，从而增添了巨大的麻烦。

综上所述，中国和亚洲经济未来要创造一条健康可持续的发展之道，就必须强化我国金融体系资源配置的能力，有效地将过于“求安稳”而被闲置下来的资金，或过度集中在房地产市场的资金引导到具有稳定收益增长的实体经济部门中，而不能过度依赖基础货币的投放来支撑自己的工业化、城镇化和农业现代化的进程。另一方面，我们也应该认识到，金融为实体经济服务的能力提高，和实体经济部门焕发出来的盈利能力是正向互动的！

反过来，如果我们的金融服务能力不到位，却过度依赖宽松的货币政策的支持，那么，我们会发现，它不仅不能增强企业的盈利能力，反而因为投机目的导致的资源价格先期上涨、或人民币对外急速升值，对内通胀预期强化、资产泡沫严重等“宽货币”的不良后果，从而进一步导致企业在实体经济部门的投资收益不断恶化，投资意愿急剧下降的后果，最终使得目前已经出现的“钱荒”和“钱流”并存的问题，更加无法得到有效地解决。

总之，欧美国家爆发危机的根源在于“金融创新滥用”导致安全资产缺失，而我们受到牵连的原因则是因为“金融创新不足”使得结构调整无法实现！所以，正像这次两会所指出那样，未来中国金融的发展要为中国经济的转型（即降低对外依存度）和产业链定位的优化（即增加靠要素回报创造财富的软实力）做出应有的贡献。为此，我们提出如下相应的政策建议：

（一）发挥一线城市金融人才和专业技术的比较优势，大力培育像美国硅谷那样的“企业家金融”的发展模式（美国有世界一流的大学研究力量，“直接金融”服务科技创新能力举世瞩目），即靠创新企业自身的高收益回报来作为金融服务的收益来源，而不是基于这类企业利润潜在增长预期来推动的市场中资本利得的膨胀来索取纯粹靠“前期概念”支撑的金融服务的“高收益”！何况欧美真正靠无形资产打造企业价值、处在创新期的大多数企业根本就没有上市的策略，而这类企业的专业化金融服务恰恰最为需要也最为关键。但诸如“私募基金”和“纳斯达克”之类提供的“金融服务”，只有到了企业开始确立了自己的知识产权，愿意寻找上市机会进一步进行产业孵化的时候，它们才介入进来分担风险牟求收益。所以“企业家金融”这样的模式，才能真正达到扶持“人才主导”的创新型小微企业的成长，实现产业升级的宏伟目标；可是，不少中国的PE和现在低迷不振的创业板恰恰是在缺失“企业家金融”模式的情况下去开展IPO服务来牟求高回报，结果出现了让一般投资者承担了劣质机构和企业圈钱的“过度风险”，进而导致了无辜的百姓对这类“金融创新服务”失去了信任的恶果！

（二）加快中国产业组织的优化调整，强化民营企业 and 国有企业、民间金融和民营企业之间的合作机制，努力塑造像中韩银行业那样的“供应链金融”（在它们国家，很多知名的大企业靠自己的品牌和规模冲在了全球市场的第一线，而国际竞争力的提高所需要的技术密集型的研发和相关零部件的制造，则外包给与自己关系密切的、处在上游的国内中小企业。于是，这些中小企业家只要

兢兢业业，把自己擅长的本职工作做好、做强，就根本不需要担心资金和市场——因为大企业会靠自己的抵押能力从银行获取低息的资金来扶持他们，靠自己的市场占有率的扩张来确保这些中小企业的订单)和像德国银行业那样的“关系型金融”(今年连续两次去德国考察和开会，发现德国的农村现代化和劳动力市场工资弹性化以及大量中小银行针对自己固定的中小企业客户群所开展的专业化和差异化服务，是确保德国制造业在残酷的国际竞争面前永葆青春的秘诀所在；他们的银行之间和企业之间没有出现破坏价格、争抢客户的恶性竞争，银企之间保持了非常稳定的信用关系。尤其值得注意的是，德国中小企业大多数选择不上市!)的商业运作模式，解决中国企业的投资渠道和大量中小型民间企业融资难的问题，从而有利于解决正规金融体系外的资产泡沫问题，促进产业资本重新回到实体经济的舞台。今天成本压力比我们更重的德国、日韩企业，都还在不断摸索创新之道来对冲劳动力成本的上升压力，坚持自己擅长的制造业，那中国就更没有懈怠的理由放弃制造业去寻找自己没有国际竞争力也不擅长的其他谋生之道!

(三)充分利用一线城市金融市场、金融机构和金融产品集聚一身的明显优势，在确保优质企业团队稳定主板市场价值以及完善和规范各种激励与风险防范的制度基础上，营造专业化机构为理财、协调和造福的现代“财富金融”(2008年之前美国的高消费现象，也是因为房价上涨所带来的“财富效应”才能让美国居民随心所欲的透支和消费；现在美联储推行第四轮量化宽松货币政策更是期待房价回暖来推动各州人口的流动，通过就业机会的增加和资产价格的修复来提升美国经济的市场活力。中国今天人均收入水平只有5000美金左右，即使不考虑贫富差距因素，也达不到曾经支撑中国出口市场繁荣的那些发达国家的十分之一。所以，今天中国“工资性收入”的增长带动的不是消费而是追求财富收入增长的投资，M2/GDP达到近200%就足以说明这个问题!也就是说，中国只有强化金融改革来不断提升财富效应，我们才能真正看到中国消费时代的到来。而目前中国“消费贡献率”的上升则是由于投资和净出口的明显下滑引起的经济增长放慢所致，而不能乐观地把它看成是“中国内需已经形成”的指标)和“消费金融”模式(要强化“资产证券化”等金融创新的能力来分散这类高收益高风险的“差异化金融服务”所带来的对金融体系造成的不稳定冲击；尤其要注意在今天中国的发展阶段，如果财富金融没有发展到位，那么消费者很有可能会滥用“消费金融”的服务平台去完成他们渴望的“财富金融”平台上投资需求。比如，透支信用卡套现买房子等。从这个意义上讲，中国的消费金融业务风险管理要求会变得更高!)，从而让日益增长的财富效应和顾客需求导向的专业化服务来推动中国内地市场的消费水平健康成长。

(四)掌握“先行先试”的主动权，利用上述“企业家金融”平台、“关系型金融”环境和“消费者金融”模式所提出的多元化市场和金融服务的高要求，来推动中资企业“走出去”战略和上海自由贸易实验区的建设，从而稳步打造国家金融安全和实体经济繁荣所需要的以“人民币国际化”为方向的“全球化金融”模式。在这个问题上，不等于人民币升值和资本账户完全开放我们就可以更有力的去实现自由贸易区和人民币国际化的目标。要知道，上个世纪80年代“日元国际化”和本世纪欧元的诞生和发展都付出了沉重的代价!

(五)在“企业家金融”平台和“消费者金融”的市场环境以及“全球化金融”的运作体系中,探索发展高质量的“城镇化”和管理外汇储备以及社保资金等公共资金投融资需求所渴望的、符合科学规律的“政府金融”运营模式(千万要杜绝地方债问题和权力寻租的腐败现象重演!这里,我建议要大力发展“城投债市场”和科技企业发行的“高收益债券市场”,通过委托专业化的金融管理团队的运作和完善的监管制度的建设来解决今天地方政府“事权缠身而财权萎缩”的问题,确保资金使用的效率和安全,从而真正解决未来养老金缺口、外汇资产缩水等问题),以分担社会大众的后顾之忧,从而确保中国经济未来可持续增长的发展势头。

最后,如果用一句话来提炼我们的政策建议的话,那就是:美国是靠金融“安全资产”的修复来提升它长期打造的技术创新的国际竞争力,而我们中国和亚洲国家,应该通过加强合作,来提升实体经济发展的活力和实力,从而以此来满足这个地区的社会大众对“财富安全性”的强烈渴望。

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新形势下的亚洲区域经济一体化： 目标、路径和政策

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1. 议题背景

当前，经济全球化正向区域化深入发展，国际政治关系中心正在加速向亚洲转移。以中国经济的快速发展为代表，亚洲已经成为了全球经济发展的一支重要力量，但是相对于欧洲和北美而言，亚洲的区域合作水平在某些层面上还有所差距，制约了亚洲地区在全球发展格局中的地位提升，也与亚洲自身的经济发展水平很不相称。如要切实提升亚洲区域合作水平，亚洲自贸区建设和区域金融货币合作所推动的亚洲区域内产业优化重组必将成为主要抓手。而作为亚洲最大的经济体，中国不同地区乃至不同地区的代表性城市（例如，上海和香港）充分利用各自比较优势实现产业重构和区域协调发展也将为夯实中国长期发展的实体经济基础和打造亚洲区域协作火车头做出重要贡献。

2. 亚洲自贸区的发展和建设

2.1 自贸区定义

于 1973 年 5 月 18 日在日本京都签署的《京都公约》（Kyoto Convention）¹ 为世界海关组织（World Customs Organization）基础性公约之一，该公约在附约 D 第二章中对自由区（Free Zone）给出如下定义：“指一国的部分领土，在这部分领土内运入的任何货物就进口税及其它各税而言，被认为在关境以外，并免于实施惯常的海关监管制度” [1]。

自贸区 (Free Trade Area) 通常是指某个贸易同盟的成员国或地区签署了自由贸易协定 (Free Trade Agreement)，根据此贸易协定中的内容，成员国或地区之间对部分商品贸易和服务贸易采取消除关税、进口配额等行为，以促进成员国或地区之间的贸易往来。建立自贸区的主要目的之一在于消除或减少成员国或地区之间的贸易壁垒。从比较优势理论来看，自贸区的成立将有助于贸易在

¹ 《京都公约》全称为《关于简化和协调海关制度的国际公约》，英文名称为 International Convention on the Simplification and Harmonization of Customs Procedures。

成员国或地区之间的专业化分工。目前世界各主要贸易区分布状况如图一所示，其中红色区域部分为多边自贸区。

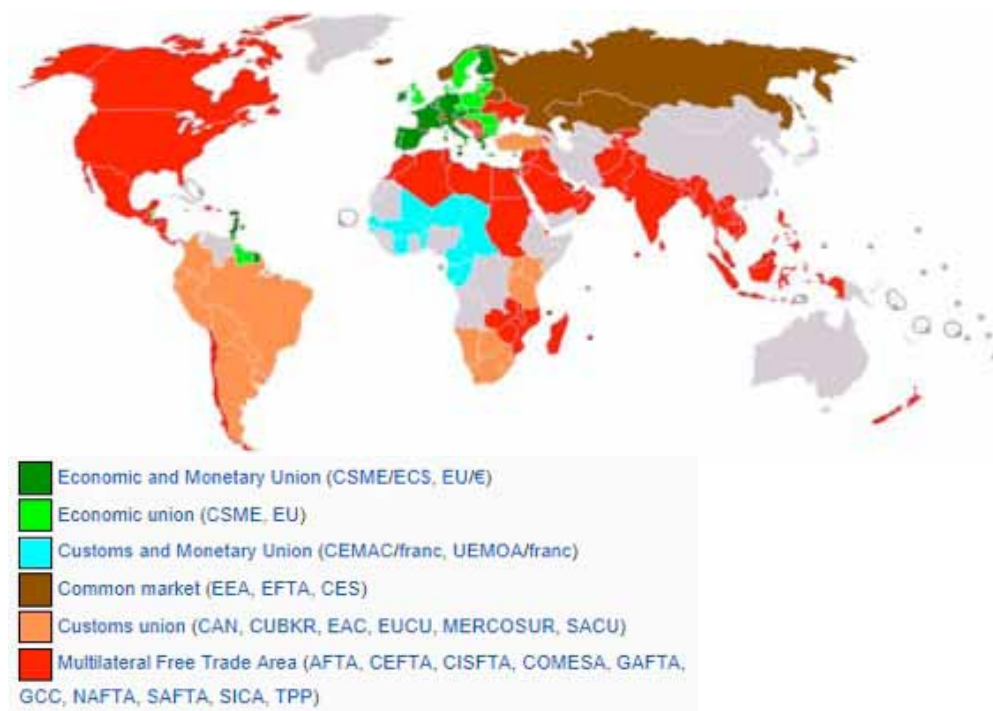
2.2 亚洲自贸区的的发展

世界贸易组织（World Trade Organization）根据 2011 年度各成员国所报告的数据对世界各主要地区的商业服务贸易和商品贸易进行统计（请见图二和图三）。通过观察图中数据可发现，在世界贸易组织各成员国商业服务贸易进出口额地区比较中，欧洲占据第一的位置，欧盟 27 个成员国商业服务贸易的进出口额分别为 1568202.0（百万美元）和 1803419.2（百万美元）；亚洲占据着第二的位置，亚洲排名前三的分别为中国、日本和印度，其中中国的商业服务贸易的进出口额分别为 237582.8（百万美元）和 183101.3（百万美元），在成员国比较中分列第三位和第四位。然而，在世界贸易组织各成员国商品贸易进出口额地区比较中，亚洲全面超越欧洲占据第一的位置；亚洲排名前三的分别为中国、日本和韩国，其中中国的商品贸易进出口额分别为 1743484.0（百万美元）和 1898381.0（百万美元），在成员国比较中分列第二位和第一位。

建立亚洲自贸区的主要经济目的在于促进自贸区内成员国或地区之间的贸易和投资发展与合作，使成员国或地区之间在进行商业服务贸易和商品贸易时更加地自由与便利。在这一过程中，自贸区内成员国或地区针对贸易和投资发展所制定的相关法律法规也将逐步变得更加透明化以及自由化，进一步促进自贸区内商业服务贸易以及商品贸易。与欧盟相比较，亚洲自贸区的建设目前仍可被认为处于发展阶段，但世界贸易组织所给出的上述数据结果暗示着亚洲自贸区的建设具有良好的发展前景和较大的发展空间。根据中华人民共和国商务部国际经贸关系司所公布的信息，我国目前已签协议的自贸区如下所示：

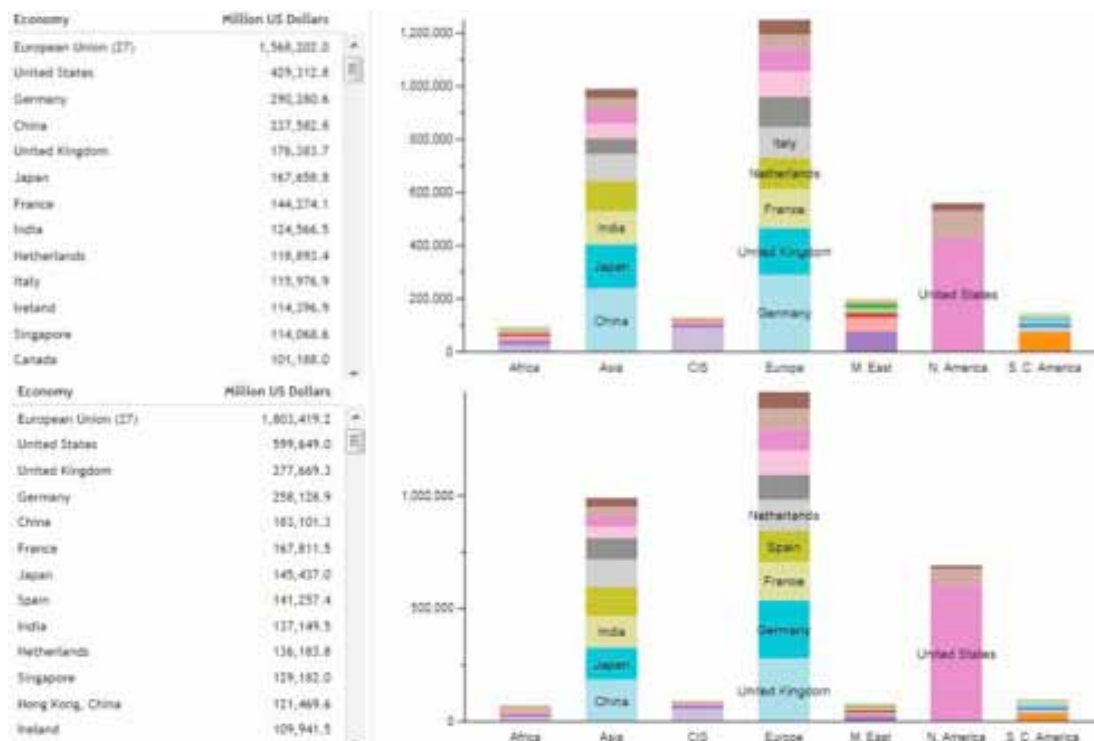
（1）内地与港澳更紧密经贸关系安排；（2）中国 - 东盟；（3）中国 - 巴基斯坦；（4）中国 - 智利；（5）中国 - 新西兰；（6）中国 - 新加坡；（7）中国 - 秘鲁；（8）亚太贸易协定；（9）中国 - 哥斯达黎加。其中第（1）项的谈判对象为香港、澳门特区政府，该协议简称 CEPA；第（2）项的谈判对象为东盟，东盟目前有十个成员国，分别是文莱、印度尼西亚、马来西亚、菲律宾、新加坡、泰国、柬埔寨、老挝、缅甸和越南；第（8）项的谈判对象为孟加拉、印度、老挝、韩国和斯里兰卡 [2]。在所有已经签订的自贸区协议中，仅三个国家的协议（智利、秘鲁和哥斯达黎加）与亚洲国家或地区无关。

图一：世界各主要贸易区分布状况



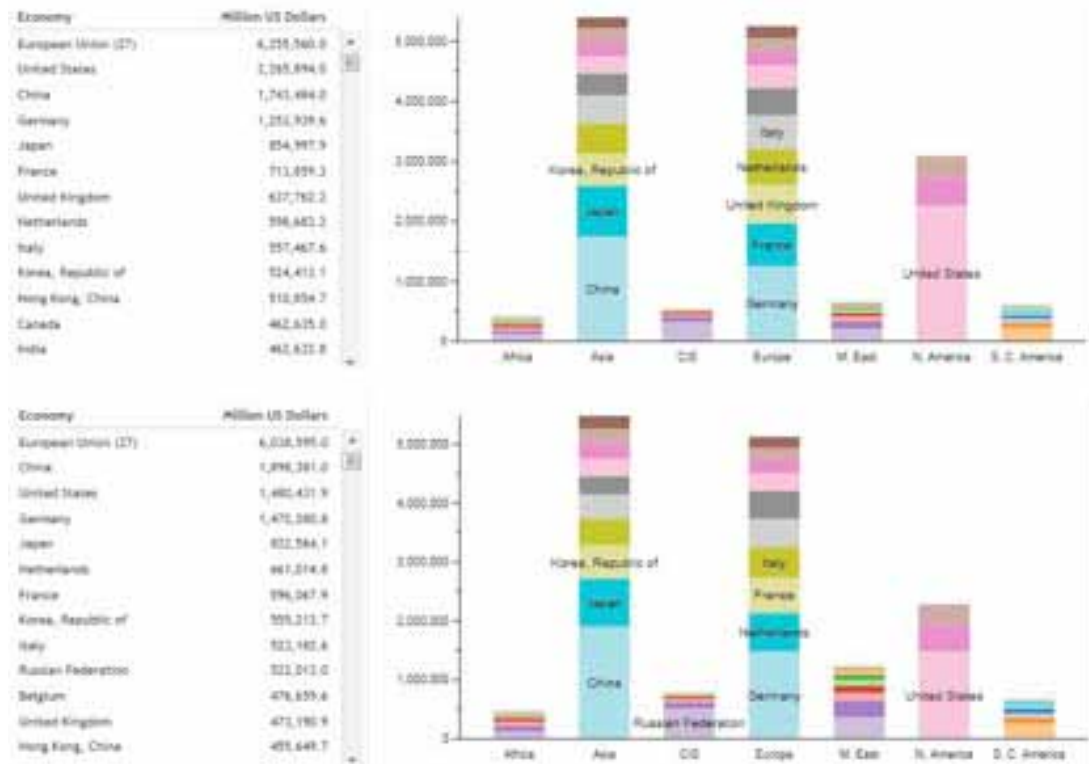
注：该图源自 [http://en.wikipedia.org/wiki/File:Economic_integration_stages_\(World\).png#file](http://en.wikipedia.org/wiki/File:Economic_integration_stages_(World).png#file)

图二：世界贸易组织成员国商业服务贸易进出口额



注：数据源自世界贸易组织数据库，其中该图上半部分为进口额，下半部分为出口额。

图三：世界贸易组织成员国商品贸易进出口额



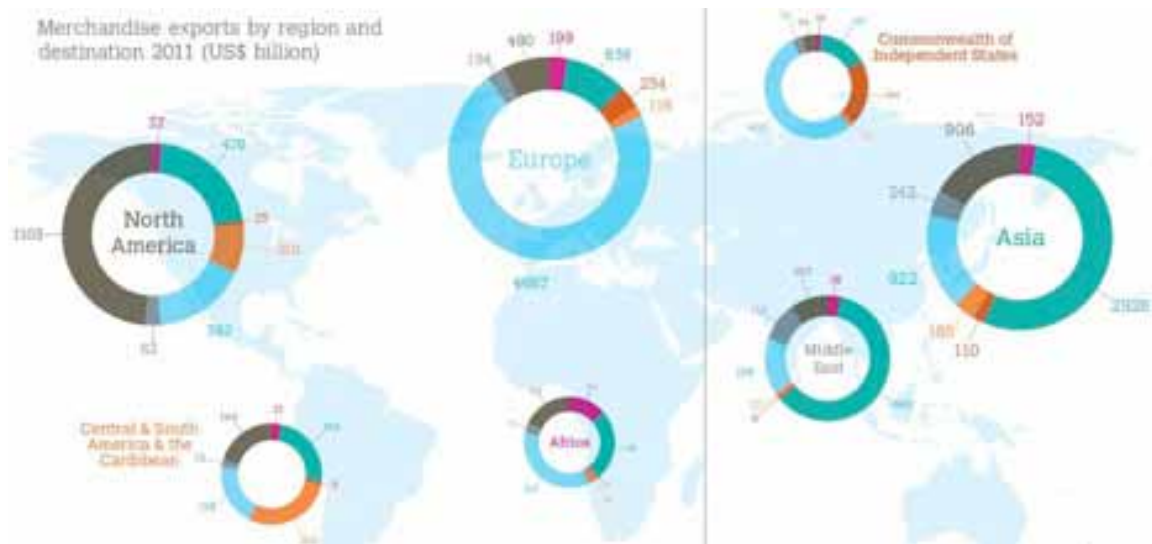
注：数据源自世界贸易组织数据库，其中该图上半部分为进口额，下半部分为出口额

2.3 亚洲自贸区的建设

2.3.1 亚洲自贸区在建设过程当中应重视欧盟在该方面的经验和教训

世界贸易组织于 2012 年 11 月 9 日公布了名为《国际贸易统计 2012》（International Trade Statistics 2012）的报告，在该报告中世界贸易组织对 2011 年地区内以及地区间商品出口进行了统计（请见图四）

图四：以地区和目的地区分的商品出口额（单位：美元，十亿）





注：该图源自世界贸易组织报告 International Trade Statistics 2012

该报告中的内容显示：北美、欧洲和亚洲在地区内贸易中表现非常强劲，其中欧洲的出口有 71% 是在本地区内进行交易，亚洲的出口有 53% 是在亚洲各国之间进行交易，而在北美该数值是 48%。非洲和中东地区该数值较少，仅分别为 13% 和 9%¹。总体而言，亚洲在地区内商品出口交易中非常活跃，但与欧洲相比较仍有较大的差距。因此，在亚洲自贸区建设问题上可着重研究欧盟在该方面的经验和教训。

表一表现了 2002 年至 2011 年间中国与世界主要区域一体化协定地区（安第斯共同体、东南亚国家联盟、欧盟、南方共同市场以及北美自由贸易协定）商品进出口总额。通过观察该表可以发现：（1）中国出口至北美自由贸易协定地区国家的商品贸易总额在这十年之间一直排名第一，出口至欧盟的商品贸易总额排名第二；（2）中国自欧盟进口的商品贸易总额在这十年之间持续排名第一，东南亚国家联盟自 2004 年之后已经取代了北美自由贸易协定地区国家第二的位置；（3）东南亚国家联盟在这十年间与中国的商品贸易往来增长十分迅速和引人注目，其商品进出口总额目前仅次于北美自由贸易协定地区国家以及欧盟；（4）在和中国的商品进出口贸易中，东南亚国家联盟与南方共同市场对中国的进口额和出口额在数值上较为接近，并未出现类似北美自由贸易协定地区国家以及欧盟与中国商品进出口贸易中所存在的巨大贸易逆差现象。

图四中的数据在某种程度上体现了欧盟在经济区域一体化方面整体上的世界领先地位，表一中数据从一个侧面表明了欧盟对中国商品进出口贸易的重要地位。因此，我国若想在亚洲自贸区建设和发展方面发挥积极的影响和作用，并从中获益，应对欧盟在处理类似问题时所获得的经验和教训加以额外的重视。

¹ 数据源自世界贸易组织 2012 年 11 月 9 日所公布的报告 International Trade Statistics 2012.

表一：中国与世界主要区域一体化协定地区商品进出口总额（单位：百万美元，当年价格）

Reporter	Flow	Indicator	Partner	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Andean Community	Exports	Total merchandise	China	646	782	1443	2124	2951	3908	4685	5273	7929	9447
Andean Community	Imports	Total merchandise	China	1301	1891	2822	3432	4822	7185	11354	8456	12761	18770
ASEAN (Association of South East Asian Nations)	Exports	Total merchandise	China	21949	31083	41582	52965	66754	79429	89327	82687	114134	142764
ASEAN (Association of South East Asian Nations)	Imports	Total merchandise	China	27136	33958	48087	62700	78876	97443	112560	97605	128045	156622
European Union (27)	Exports	Total merchandise	China	32858	48276	59435	63677	79145	97368	114573	113577	148281	188677
European Union (27)	Imports	Total merchandise	China	85088	110981	159994	199230	244357	317700	364051	298383	374000	404818
MERCOSUR (Southern Common Market)	Exports	Total merchandise	China	3725	7124	8229	10179	12057	16131	23023	24126	38881	51118
MERCOSUR (Southern Common Market)	Imports	Total merchandise	China	2252	3343	5983	8135	13045	20500	31586	24356	38891	49554
NAFTA (North American Free Trade Agreement)	Exports	Total merchandise	China	25337	32836	40093	48271	62218	73675	81638	81486	108015	126850
NAFTA (North American Free Trade Agreement)	Imports	Total merchandise	China	150309	186383	244277	303062	362082	407610	433525	379051	474433	521229

注：该表源自世界贸易组织数据库

2.3.2 我国应重视推进亚洲自贸区的发展和建设，并在开展工作时注重商品贸易类别的差异，做到主次有别。

世界贸易组织在表二中对中国商品贸易进出口数据进行了统计，通过观察该表中的数据可以发现：（1）中国出口商品中制造业商品所占份额最多，达到了 93.3%，农产品出口为 3.4%，能源及矿产品出口为 3.1%；（2）中国进口商品中制造业商品为 59.2%，能源及矿产品进口为 29.6%，农产品进口为 8.3%；（3）在 5 个主要出口和进口目的地国家和地区中，除了欧盟和美国之外，其余均是亚洲国家或地区，其中包括香港，日本，韩国，台北；（4）在前 5 名出口目的地国家和地区中，出口到香港、日本和韩国的商品所占出口总额的比例为 26.3%，欧盟和美国合计为 35.9%；（5）在前 5 名进口目的地国家和地区中，进口自日本、韩国和台北的商品所占进口总额的比例为 27.7%，欧盟和美国合计为 19.2%。

表二：中国商品贸易进出口统计数据

MERCHANDISE TRADE		Value	Annual percentage change
		2011	2010
Merchandise exports, f.o.b. (million US\$)		1 898 381	31
Merchandise imports, c.i.f. (million US\$)		1 743 484	39
		2011	2011
Share in world total exports		10.40	
Share in world total imports			9.46
Breakdown in economy's total exports			
By main commodity group (ITS)			
Agricultural products		3.4	8.3
Fuels and mining products		3.1	29.6
Manufactures		93.3	59.2
By main destination			
1. European Union (27)		18.8	12.1
2. United States		17.1	11.2
3. Hong Kong, China		14.1	9.3
4. Japan		7.8	7.2
5. Korea, Republic of		4.4	7.1
Breakdown in economy's total imports			
By main commodity group (ITS)			
Agricultural products			8.3
Fuels and mining products			29.6
Manufactures			59.2
By main origin			
1. European Union (27)			12.1
2. Japan			11.2
3. Korea, Republic of			9.3
4. Taipei, Chinese			7.2
5. United States			7.1

注：该表源自世界贸易组织数据库

表三反映了世界贸易组织以地区和经济体分类的中国商品贸易在 2001 年至 2011 年之间进出口统计数据。通过观察该表可以发现：（1）在这十年间中国对亚洲国家的商品出口额一直大于对北美和欧洲等地区的商品出口额；（2）在这十年间中国对亚洲国家的商品进口额一直远远大于对北美和欧洲等地区的商品进口额；（3）中国的商品进出口贸易与日本以及其它东亚国家和地区联系非常紧密，并且在这十年间增长十分迅速；（4）中国与其它亚洲国家和地区的商品进出口贸易在这期间增长非常迅猛，其增速超过了中国与东亚国家和地区之间的进出口贸易发展。

表三：以地区和经济体分类的中国商品贸易 2001-2011（单位：十亿美元）

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Exports											
World	266.1	325.6	438.2	583.3	762.0	969.8	1226.5	1438.7	1261.6	1577.8	1886.4
North America	77.5	100.4	130.4	176.2	236.0	264.2	326.2	349.7	304.8	394.5	458.2
United States	71.1	91.4	119.2	159.7	204.9	255.0	289.4	308.0	269.3	345.6	398.6
Other North America	6.4	8.0	11.2	16.4	21.1	29.2	36.9	41.7	35.5	47.9	59.6
South and Central America	6.3	6.5	8.4	13.0	17.7	26.6	39.5	56.9	42.9	69.9	94.0
Brazil	1.3	1.5	2.1	3.7	4.8	7.4	11.4	18.8	14.1	24.5	31.8
Other South and Central America	5.0	5.0	6.3	9.3	12.9	19.2	28.1	38.0	28.8	45.4	62.2
Europe	55.4	67.2	100.8	140.5	186.8	244.3	317.8	371.5	301.5	396.5	459.9
European Union (27)	53.4	64.7	96.5	134.4	178.3	231.4	295.3	351.6	285.9	376.6	434.2
Other Europe	2.0	2.5	4.2	6.0	8.5	12.9	18.6	19.9	15.7	19.9	25.7
Commonwealth of Independent States (CIS)	3.5	5.1	9.3	13.6	21.4	28.0	48.1	64.7	39.0	53.8	67.2
Russian Federation	2.7	3.5	6.0	9.1	13.2	15.8	28.5	33.1	17.5	29.6	38.9
Other CIS	0.8	1.6	3.3	4.7	8.2	12.2	19.6	31.6	21.5	24.2	28.3
Africa	5.9	6.9	10.1	13.6	18.5	26.2	36.8	50.5	46.3	56.1	69.1
South Africa	1.0	1.3	2.0	3.0	3.8	5.8	7.4	8.6	7.4	10.8	13.4
Other Africa	4.9	5.6	8.1	10.7	14.7	20.4	29.3	41.9	38.9	45.3	55.8
Middle East	7.1	9.5	13.3	16.9	22.2	29.6	44.3	58.8	51.1	62.6	79.7
Asia	110.3	130.0	165.9	219.1	289.2	329.5	406.6	477.4	413.4	537.0	663.3
Japan	49.0	55.3	70.8	89.6	102.4	112.0	124.9	138.7	118.1	148.4	182.8
Six East Asian traders	43.6	52.4	64.6	86.5	111.7	145.8	181.1	212.0	175.2	223.3	270.9
Other Asia	17.7	22.2	30.5	43.0	55.2	71.6	100.6	126.7	120.0	165.3	209.6
Imports											
World	243.6	295.2	412.8	561.2	668.8	791.5	956.1	1132.8	986.9	1305.1	1743.5
North America	31.0	32.0	40.0	54.2	66.5	69.6	83.8	97.9	83.7	124.5	154.7
United States	26.2	27.3	33.9	44.8	48.7	59.2	69.5	81.6	77.6	102.7	123.1
Other North America	4.8	4.7	6.1	9.5	9.7	10.3	14.2	16.4	16.1	21.8	31.5
South and Central America	5.9	7.2	13.2	19.5	24.4	31.5	47.7	67.7	60.2	84.2	109.3
Brazil	2.3	3.0	5.8	8.7	10.0	12.9	18.3	29.9	28.3	38.1	52.4
Other South and Central America	3.6	4.2	7.3	10.9	14.4	18.6	29.4	37.8	32.0	46.1	56.9
Europe	39.0	43.1	58.1	76.2	79.9	97.2	120.0	144.4	138.8	192.3	245.9
European Union (27)	36.4	39.8	55.0	70.5	74.0	90.6	111.0	132.6	127.6	169.4	211.2
Other Europe	2.6	3.3	4.2	5.7	5.9	6.6	9.0	11.8	12.0	24.0	34.7
Commonwealth of Independent States (CIS)	9.6	10.6	13.1	16.2	20.7	22.8	28.0	33.9	31.0	43.3	65.5
Russian Federation	8.0	8.4	9.7	12.1	15.9	17.6	19.7	23.8	21.3	25.9	40.4
Other CIS	1.7	2.2	3.4	4.1	4.8	5.2	8.3	10.1	9.8	16.4	25.2
Africa	4.8	5.4	8.4	15.6	21.1	28.8	36.4	56.0	43.2	67.1	93.2
South Africa	1.2	1.3	1.8	3.0	3.4	4.1	5.6	9.2	8.7	14.9	32.1
Other Africa	3.6	4.2	6.5	12.7	17.6	24.7	29.7	46.7	34.6	52.2	61.1
Middle East	9.2	8.5	14.4	21.6	31.0	40.8	47.9	79.9	56.2	86.7	134.1
Asia	144.0	187.3	264.5	357.7	424.3	500.8	592.3	692.7	581.2	797.4	934.7
China	8.8	15.0	25.1	38.7	55.2	73.3	85.8	92.5	86.4	106.9	122.6
Japan	42.8	53.5	74.1	94.3	100.4	115.7	134.0	150.6	130.9	176.7	194.6
Six East Asian traders	76.2	99.3	136.9	182.5	214.3	246.8	286.5	306.3	272.0	374.7	432.4
Other Asia	16.2	19.6	28.4	42.2	54.4	65.0	86.1	103.3	91.9	139.2	185.1

注：该图源自世界贸易组织报告 International Trade Statistics 2012

以上的数据说明了中国与亚洲国家和地区（特别是东亚国家和地区）的经济联系紧密程度。如果仅从经济角度出发，我国必须重视亚洲自贸区的发展和建设问题，尤其是东亚国家和地区之间的自贸区谈判（例如，日本和韩国）。此外，对已建成或将要建成的自贸区，中国政府在进行相关资源配置的时候应有轻重缓急之分，注重自贸区内进出口商品贸易类别的差异（例如，商品进口中的农产品、能源及矿产品类别等），做到主次有别，更有效率地建设和使用相关资源。

2.3.3 考虑区域经济合作程度时不应过于关注对外贸易依存度指标

尽管对外贸易依存度作为衡量某国对外开放程度的一个重要指标可以被用于区域经济合作程度的关系分析，但是在应用该指标的时候必须要注意不同国家的各自特性。对区域经济合作程度的判断是否仅依靠对外贸易依存度来进行分析是值得商榷的。有争论认为如果经济发展和对外贸易依存度之间存在一种正相关性，相对于欠发达的小国而言，发达大国可能会有更高的贸易比重。Nadim G. Khalaf 在 1971 年指出一国的经济稳定性、经济结构的多样性、对外贸易依存度以及经济增长和发展水平与该国的大小是有关系的 [3]。因此，在对亚洲区域经济合作程度进行分析的时候研究者应考量区域内国家的大小、当前经济发展水平（发达国家或发展中国家）等多种因素对其的影响。

2.3.4 国际贸易保护主义发展趋势

自 2008 年起，全球经济发展不断地受到各种负面因素的冲击。在 2008 年第一季度至 2009 年第三季度之间，世界商品贸易额快速下降；之后世界商品贸易额在 2010 年底至 2011 年初之间恢复到 2008 年初的水平，并在之后缓慢爬升（如图五所示）。实际上前文表三（以地区和经济体分类的中国商品贸易 2001-2011）中的数据也从一个侧面反映了该趋势。例如，2008 年中国对世界各国和地区的出口总额为 1430.7（单位：十亿美元），2009 年下降到 1201.6，而 2010 年的出口总额 1577.8 就已经超越了 2008 年的数值，2011 年更是创出 1898.4 的新高；同时期中国对世界各国和地区的进口总额也反映出了同一趋势。

但中国的商品贸易数据未必具有普遍性，根据世界贸易组织（WTO）公布的信息，由于全球出口的缓慢增长，世界贸易组织经济学家已经下调了 2012 年和 2013 年世界贸易增长预测值：2012 年的预测值由原先的 3.7% 下调至 2.5%，2013 年的预测值由原先的 5.6% 下调至 4.5%。世界商品贸易额以及世界贸易增长预测值的降低可以在某种程度上反映国际贸易保护主义逐步抬头的现象，然后 2013 年国际经济形势是否能够逐步好转、国际贸易保护主义的上升趋势是否能够得到遏制仍需要进一步的研究和判断，这一点在亚洲自贸区的建设和发展过程当中要加以注意。

图五：世界商品贸易额 2005 年第一季度 -2013 年第四季度



注：该图源自世界贸易组织秘书处，其中自 2012 年第二季度起为预测值。

3. 深化亚洲金融货币合作

3.1 亚洲区域经济发展与金融货币合作的必要性

1997 年东亚金融危机爆发前，东亚国家之间经济融合程度开始加深，区域内贸易在贸易总额中所占份额逐步增加。但与逐步加深的经贸关系相比，东亚国家在机制化的金融合作方面仍然较为滞后，应对金融危机的能力有限。1997 年的东亚金融危机给东亚各国带来了惨痛的教训，由于东亚各国经济体制、产业结构的相似性，金融危机的“传染效应”非常明显。此后，东亚各国一直在努力探索如何通过加强区域货币金融合作以达到防范金融危机的目的。2000 年 5 月，中国、日本、韩国与东盟在泰国的清迈达成了《清迈倡议（CMI）》，建立了各层次的政策对话机制，开展了货币互换活动，设立了亚洲债券基金等等，这些构成了东亚地区金融合作发展的基础。

在经济、金融一体化背景下，世界上出现了一股货币集团化的潮流，产生了不少区域性货币组织，如西非货币联盟、中非货币联盟和阿拉伯货币基金组织等。2002 年 3 月 1 日欧元作为唯一的法定货币开始在欧元区 12 国流通，拉美地区一些国家美元化等现象的出现，反映出货币联盟理论在实践上的应用是成功的。欧元区和美元区等一系列成功经验使人们对东亚货币金融合作充满了信心。

近期，全球金融危机使东亚金融合作再次受到关注。这场全球金融危机比 10 年前东亚金融危机影响要大，没有哪个国家能单独应对，凸显出了加强区域合作的重要性。2008 年 11 月 26 日，中日韩三国在日本东京召开了三国宏观经济与金融稳定研讨会，是继 11 月 15 日华盛顿 G20 会议之后三方的又一次重要合作会议。12 月 13 日，中、日、韩三国峰会于日本福冈举行。三国领导人

一致认为，世界经济和金融市场正面临严峻挑战，有必要以有效方式加强三国合作，应对当前形势。三国领导人强调进一步加强区域合作以应对金融市场动荡的重要性。

博鳌亚洲论坛 2009 年年会于 4 月 17 日至 19 日在中国南部海南省的博鳌镇举行。来自亚洲以及其他各大洲的上千名政府首脑、商界领袖和专家学者将围绕如何应对国际金融危机展开讨论。在年会上，建立亚洲区域外汇储备库再次被提上议事日程。中国方面提出，加快清迈协议多边化进程，最大限度照顾彼此关切，尽早达成共识，建成区域外汇储备库，增强本地区抵御金融风险能力。同时，充分发挥双边货币互换协议作用，研究扩大互换额度和签约国范围。这表明，虽然推出亚洲统一货币“亚元”道路仍然很长，但亚洲区域货币合作的步伐却因金融危机而加快。亚洲外汇储备基金的设想起源于 2007 年。当年 5 月，在清迈协议的基础上，东盟和中日韩财长会议提出了设立共同外汇储备基金的设想。今年 2 月 22 日，于泰国普吉岛召开的东盟和中日韩（10 + 3）特别财长会议决定将筹建中的区域外汇储备基金规模进一步扩大 50% 至 1200 亿美元。亚洲国家扩大储备基金规模可增强亚洲抵御金融风险的能力；可以保证各国外汇储备的安全；可以增强对亚洲以外国家的吸引力，为超主权货币创造先行先试的经验。

由此可以看出，东亚金融合作是大势所趋。然而，到目前为止，东亚金融合作仍然处于初级阶段，东亚金融合作仍处于较低层次，远远落后于贸易和投资领域的合作。而对东亚合作的研究也多集中于货币合作方面，在今后的一段时间里，东亚所面临的更为迫切的任务是制定一个切实可行的，又具有长远目标的区域金融合作框架，以推动东亚金融合作实质性发展。

3.2 亚洲货币金融合作的主要进展

迄今为止，亚洲的货币金融合作主要经历了三个发展阶段：

第一阶段是 1997 年亚洲金融危机爆发之前，虽然东亚区域内的贸易投资与技术联系已经相当紧密，在一些局部地区或整个亚太地区出现了一些贸易或投资领域的区域合作的机制，如 1977 年建立的东盟多边互换安排（ASA）与 1991 年建立的东亚及太平洋地区中央银行官员会议（自 1996 年起为东亚及太平洋地区央行行长会议，EMEAP）等，但东亚作为一个整体，在货币金融领域却没有形成实质性的合作机制。

第二阶段是金融危机爆发至 2000 年期间，主要是该地区大国纷纷提出救援计划或构想，如日本政府提出了建立“亚洲货币基金”（AMF）的构想，并实际以“新宫泽构想”为核心采取了积极主动的救援措施，中国政府提出的人民币不贬值政策也在很大程度上缓解了危机的蔓延，但这一时期东亚各经济体尚未就区域货币合作问题达成基本共识。

第三阶段是 2000 年“清迈倡议”提出以来的实际推进阶段，东亚各经济体就区域货币合作达成共识，并开展了一系列的积极行动，在诸如信息沟通与共同监管机制、货币互换和推进亚洲债券市场建设等许多领域取得了一定的实际进展，特别是次贷危机爆发并引发了全球金融危机后，触发

了各经济体进一步加强合作的意愿，2008年5月ASEAN10+3财长和中央银行行长马德里会议就有关CMI多边化问题达成了一致，2009年2月22日于泰国普吉召开的ASEAN10+3特别财长会议发表了5亚洲经济金融稳定行动计划，扩大了《清迈倡议多边机制（CMIM）》共同储备基金的规模，并提议建立独立的区域经济监控实体。2009年5月3日，在印度尼西亚巴厘岛举行的ASEAN10+3财长会议公布，总值1200亿美元的区域外汇储备库将于2009年底前完成筹建。中、日、韩国三国财长3日还就三方筹建中的自我管理的区域外汇储备库的出资份额达成共识。根据这项共识，中国出资384亿美元，日本出资384亿美元，韩国出资192亿美元，分别占储备库总额的32%、32%和16%（ASEAN占20%）。在发生金融危机时，储备库以借贷方式向出现流动性困难的成员提供资金帮助。

总体来看，2000年以来东亚各经济体就区域货币金融合作达成共识并在CMI框架下所做的努力主要体现在以下几个方面：

其一是建立信息沟通与共同监测机制，主要包括对成员国宏观经济发展、经济政策和金融市场等方面的信息进行沟通和共享，并对其进行监测和分析以及监测宏观经济、金融市场运行中出现的不利变动及其影响，并提出政策建议。

其二是清迈倡议的启动及其多元化。CMI的主要目的有三个：1）充分利用ASEAN10+3的组织框架，加强有关资本流动的数据和信息交换；二是完善ASEAN互换安排，使其覆盖所有ASEAN成员国；三是在ASEAN10+3范围内建立双边货币互换网络和回购协议，承诺在必要时向成员国提供适当规模的资金，用于帮助其解决短期国际收支或流动性方面出现的问题。显然，CMI是一种危机救助机制，其主要思路或原则是对金融危机的防范和救助。2005年以后，CMI逐步从双边走向多边，其中，在2007年于日本京都举行的APT会议上，各成员确认了CMI框架的货币互换总额已达800亿美元，并一致同意在一个整体契约的大前提下，建立一个原则上成员国自行管理的储备池，在此基础上指定各国财长的代表共同讨论监管体系、外汇储备的适当性、资金约定规模、借款限度额、发动机制等CMI多边化的事项，在技术层面上把CMI多边化计划向前推进一大步。

其三是发展区域债券市场。在现行的美元体制下，东亚地区虽然拥有世界上最高的储蓄率和巨额的外汇储备，但资金却大量流向以美国为首的发达国家金融市场，自身经济发展所需的资金却不得不依赖区域外短期资金的流入，导致双重的货币错配，成为导致金融市场动荡乃至金融危机的主要根源。亚洲金融危机爆发后，东亚各国、各地区深切地认识到区域资本市场不发育尤其是债券市场落后的危害，发展区域债券市场成为区域货币金融合作的一项重要议程。由东亚各国政府和私人企业参与发行的亚洲一揽子货币（Asian Basket Currency, ABC）债券、亚洲债券基金（Asian Bond Fund, ABF）等，对于推动更多国际投资者进入亚洲债券市场、区域债券市场的开放以及区域监管合作的建立与发展都起到了重要作用。

其四是区域汇率合作的提出与“亚洲货币单位（ACU）”的设立。

3.3 亚洲金融货币合作面临的挑战

亚洲区域金融货币合作的确已经取得了阶段性成效，但同时也将合作推进到一个新的发展阶段，在这个阶段，我们面临一些新的挑战。

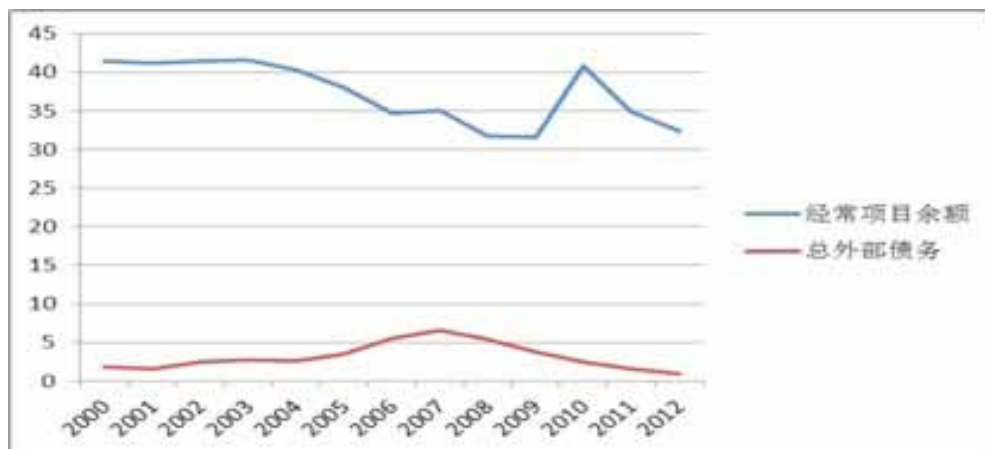
3.3.1 对美元的过度依赖

1997 年亚洲金融危机前后，亚洲国家都或多或少地将美元作为钉住货币，美元本位现象较为严重。大多数亚洲国家缺乏发达的国内金融市场，不完善的金融市场使得这些国家不能凭借本国货币向外国借款或获取长期贷款。此外，由于所有东亚国家很少得到以本币形式持有的经常项目顺差的债权，这些国家官方或私人往往以美元的方式持有国外债权。因此，这些国家美元债权存量不断累加（因为其本国货币不能用于国际交易），以及本币面临国内外的升值压力。由于世界价格主要由美元计价，本币升值可能导致通货紧缩，从而丧失贸易竞争力。在这种情况下，政府将进退维谷，因为作为债权国，它没有切断与美元联系的选择余地。事实上，在美元本位下，亚洲国家无法从根本上摆脱“三元悖论”：在开放经济中，固定汇率制、完全的资本流动和货币政策独立性这三个目标中只有两个可以同时实现，任何企图同时实现这三个条件的行为都将导致一场货币危机 [4]。

3.3.2 东亚成为世界债权国

全球国际收支失衡主要体现在两个方面：一是美国巨额的经常项目逆差和迅速上升的净对外债务；二是部分国家大量的贸易顺差（尤指部分东亚国家的对美贸易顺差）和迅速累积的外汇储备。这一失衡状况使得东亚国家一方面向美国输出商品，获得外汇储备；另一方面又将累积的外汇储备再次返回美国，弥补美国的经常项目逆差，支持了美国继续进口大量商品。这种格局使得东亚国家在经常项目顺差的同时，成为了主要的债权国（请见图六）。

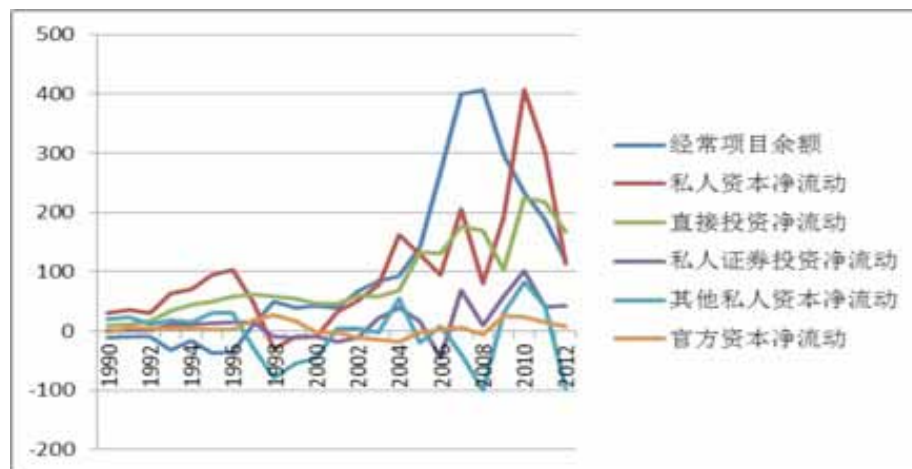
图六：亚洲新兴市场成为世界债权国（占 GDP 的百分比）



注：IMF, World Economic Outlook Database, October 2012

实际上，东亚地区资本流动不确定性的挑战一直存在。在 20 世纪 90 年代前期，东亚国家经历大规模的资本流入。1997 年东亚金融危机干扰了这一流入趋势。随后，东亚地区总的资本流入开始缓慢恢复。但是近期以来，东亚总的资本流出开始增加，使得东亚整体的资本净流入达到了新的低点（请见图七）。

图七：亚洲新兴市场的资本流动（单位：十亿美元）



注：IMF, World Economic Outlook Database, October 2012

受美国次贷危机的影响，东亚国家进一步的资本流出可能性非常高。首先，国际收支失衡仍将持续，东亚国家累积的外汇储备需要以流出的方式再循环。其次，为应付货币升值的压力，一些东亚国家实施放开资本流出的政策。比如，2006 年以来，中国、韩国和马来西亚都放松了对公司和个人进行海外投资的限制，同时，韩国和泰国还允许养老金进行海外投资。放松资本流出的限制，尽管在一定程度上缓解了货币升值的压力，但同时也可能为资本大规模抽逃打开了方便之门。再次，受美国次贷危机的影响，在金融动荡升级的情况下，一些大型的国际金融机构和对冲基金为了减少账面损失，会相应地减少新兴市场在其证券组合中的比重，这也成为东亚地区资本外流的一个因素。最后，东亚国家的本土投资倾向较弱。由于金融市场的不发达，金融产品选择性有限，东亚的投资者更愿意投资到海外发达的金融市场。

3.3.3 缺乏区域金融监控机制

从多次金融危机来看，金融危机的传染效应已经成为金融全球化的一个本质特征。理论上，传染效应的共同特征通常是汇率、股价和利率等变量的联动性。而在这种联动性背后的传播渠道，一是源于实际部门的冲击和基本经济变量的变化；二是贸易联系和财富效应；三是资本流动和金融联系；四是由于信息不完全性的普遍存在，投资者以不充分信息形成的预期往往导致的羊群行为

[5]。这些因素导致的危机地域性溢出效应的结果，一方面使单个国家的干预效力大为降低，另一方面由于国际金融机构无法对地区性危机提供及时的、对症下药的援助，因此，建立区域性经济监控机制十分必要。而在亚洲，目前存在的若干政策对话机制中，没有一个机制能发挥这样的作用。

3.3.4 亚洲金融货币合作的路径有待探讨

在过去的十几年里，亚洲金融一体化程度逐渐提高。但是总体而言，亚洲国家仍然非常依赖美国市场，美元本位现象严重，美元仍是亚洲国家主要的产品计值货币、金融交易货币、储备货币以及官方干预货币。在金融全球化持续深入的影响下，亚洲国家面临新的严峻的挑战。因此，亚洲的区域性金融合作需要针对一系列的新挑战，探讨出更加合理、有效地解决方案，一起推动合作向着更深入的层次迈进，缓解东亚地区不稳定性风险，抵御外部市场的过度冲击。

这正是本次分论坛在“产业融合与亚洲区域协作”大框架下，集中相关学者，通过观点和认识的沟通与碰撞，对于“深化亚洲金融货币合作，促进区域产业融合和亚洲区域协作”这一子议题进行探讨的意义和目的所在。

4 舞动亚洲产业融合和区域协作发展的亚洲城市竞合轴

4.1 竞合理论的背景

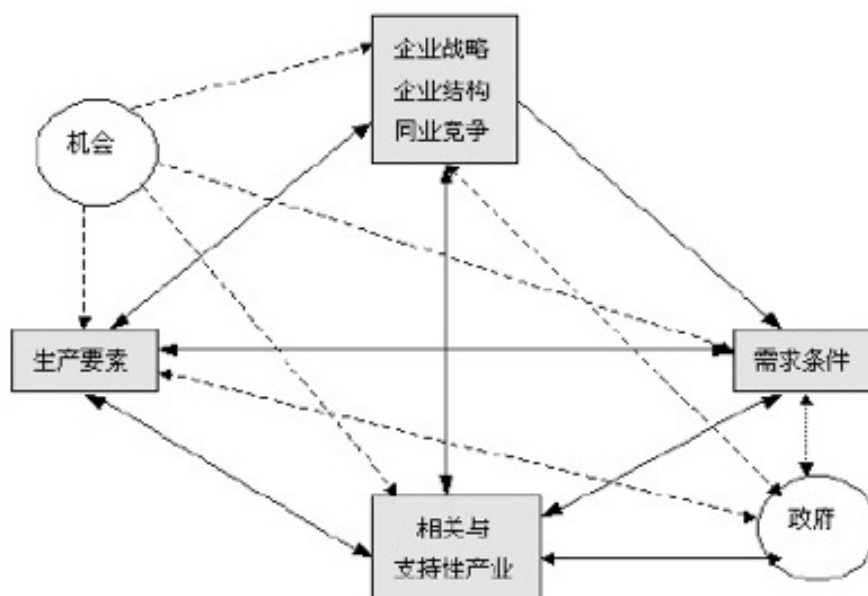
在工业经济时代，传统的企业战略管理基本都是以竞争为中心，本质目标就是获得竞争优势。对于竞争理论的研究，哈佛大学商学院迈克尔·波特教授最具代表。他在《竞争战略》一书中提出：一个产业的竞争激烈程度及产业中潜在赢利能力的大小，取决于产业结构中的五种力量（即潜在的加入竞争者、产业竞争者、替代品、买方、供应方）[6]。在此基础上，波特教授又对国家竞争优势的来源进行了长达四年的研究，于1990年提出了国家竞争优势理论，他认为一个国家的产业竞争优势是受四项环境因素影响的，即提出了著名的“钻石体系”如图八所示。

波特教授的竞争优势理论和国家竞争优势理论对企业和国家如何提高自身的竞争力进行了深入地研究，主要是以强调竞争为核心，原因在于工业经济条件下的传统生产要素是人员、设备、资金等具有稀缺性和排他性的资源，企业竞争力、国家竞争力的提高依赖于对这些资源的占有，这就决定了工业经济时期市场的性质是竞争，即一种非合作的零和博弈：一方的收益必定是另一方的损失，某些博弈方的赢肯定来源于其他博弈方的输，这种博弈的特点是，不管各博弈方如何决策，最后的社会总得益及各博弈方得益之和总是为零[7]。

在当今的知识经济和信息经济时代，知识和信息已经取代传统的生产要素成为企业、国家的主要资源，这些资源的共享性和包容性决定了无论是企业之间还是国家之间都必须从单纯的竞争转变为在合作中竞争，在竞争中合作，即一种正和且可变的变和博弈：在不同的策略组合下，各博弈方的得益之和一般是不相同的，在变和博弈中存在着社会总得益较大的策略组合和社会总得益较小

的策略组合之间的区别，这也就意味着在博弈方之间存在着相互配合、争取较大的社会总得益和个人得益的可能性。美国战略管理学者为此还专门构造了一个新词“co-opetition”将“合作（cooperation）”和“竞争（competition）”合二为一，意为“竞合”，即竞争性合作。哈佛大学教授亚当·布兰顿伯格和耶鲁大学教授巴里·内尔布夫正是从这样一个新的角度利用博弈论的研究方法，分析了企业之间既竞争又合作的关系，并于1996年发表的一篇文章中首次提出了“竞合”理论，阐明合作竞争并不是“竞争”与“合作”的简单组合，而是一种动态的共同合作竞争的博弈关系，以此实现双赢[8]。后来，意大利 Catania 大学教授迪格里尼和 Bocconi 大学布杜拉又提出了企业间共同创造价值的“竞合优势”概念。

图八：波特的“钻石体系示意图”



注：该图源自迈克尔·波特所著“国家竞争优势”（北京：华夏出版社，2001年）

此后竞合理论被我国学者引入到城市竞争领域并展开了城市竞合的研究，认为城市竞合是竞争与合作相互融合的动态过程，是城市竞争的高级表现形式。城市竞合主要包括主导产业竞合、旅游竞合、港口竞合、政府竞合、空间竞合等。有研究者提出，双赢机制是城市竞合的重要保证，提高城市间分工程度，形成合理的城市分工合作体系，并按照原有市场规模合理分配分工合作预期收益，可以形成利益协调、竞合共赢的局面[9]。竞合参与者的协同能调整和完善城市竞争与合作关系，建成现代国际大都市。

4.2 亚洲城市的迅速发展

2011年伦敦金融城公布的“第九期全球金融中心指数”对全球75个城市作为金融中心所具备

的竞争力比较显示，伦敦和纽约排名前两位，亚洲的香港和新加坡位列三四，而上海和东京则并列第5，前6大金融中心中有4个中心来自亚洲，这表明了世界经济实力继续由西方向东方转移的事实。在这样的背景下，亚洲主要城市之间应该充分发挥各自的比较优势，形成利益协调、竞合共赢的局面，进一步推进和带动区域的经济发展，本次分论坛设立的重要目的之一就是集合各界学者的智慧，共同探讨亚洲各个主要城市之间竞合关系形成的双赢机制。

4.3 上海和香港金融业竞合发展、实现共赢

以上海和香港金融业发展为例，两个城市处理好竞争与合作的关系，能够推动金融业的发展，从而更好地为实体经济服务，带动本地乃至区域经济的发展。

2009年3月25日国务院常务会议审议并通过关于推进上海加快发展现代服务业和先进制造业、建设国际金融中心和国际航运中心的意见，指明了上海国际金融中心的建设方向，而香港金融中心已形成。

上海和香港是两个功能互补和发展动力机制互补的金融中心。功能互补体现在资金供求关系方面，上海是融资式金融中心，即境外资金流入上海后向境内扩散，而香港则是吸收式金融中心，即吸收境内资金向境外散出。从发展动力机制的互补关系来看，香港主要是依靠政策推动，而上海则依托国内强大经济基础。正是有鉴于这种互补关系，两地应加强合作，实现共赢。

4.3.1 上海、香港处在不同的发展阶段，有合作互补的必要

上海现阶段最重要的是完善自身的金融法制法规的建设，而香港因为受限制于自身狭窄的市场，最重要的是拓展自己的空间。而香港本身有完善的制度，通过“A+H”机制，利用香港法制和法规的监管，可以不断完善上海的监管体制，并促进上海金融制度的建设。而因为上海的市场深度和广度不够，很多大型企业上市，上海市场是无法独自承受的，从中国银行在内地发行A股造成的资金压力可见一斑。而上海的市场不足，这一点正好可以被香港弥补，可以帮助香港金融中心地位的稳固。上海有广阔的金融腹地的支持，市场的空间很大，在完善自身的制度以后，将有更大的发展空间。

4.3.2 以金融业规模的扩大适应中国经济总量发展的需要

中国经济高速发展，导致经济总规模的扩大，加上市场化进程，经济对金融业的需求提高，金融资产迅速增长。金融业规模的扩大，通过金融中心的形成和发展得以实现。邓小平曾提出“再造几个香港”，其含义中的一点就是需要更多的具有香港那样的功能的城市，随着中国经济总量的增大，来适应开放与发展的需要，尤其是贸易与投资的需要。随有几个像香港那样高度开放的中心城市，是完全必要也有益的，而上海也正是在起到这样的作用。上海与香港的金融合作，将导致中国金融业规模的扩大，是中国经济发展的客观需要，也是必然结果。

4.3.3 以功能互补加速金融体系的成熟

从国际比较看，金融中心的特点并不是完全相同的。由于形成和发展的特殊条件，由于所建立的代表性市场的区别，国际金融中心各具特色。当代主要国际金融中心分别以证券、期货、衍生工具、短期资金和黄金等市场作为自己的特色，沪港之间也将是这样。比如，由于香港在过去一二十年中已经初步发展起来一些衍生金融市场，而内地则由于体制的不成熟，迄今仍缺乏必要条件。所以，以贸易和生产为主的传统金融业务，至少在一段时间内仍将占主流。又比如，香港金融中心的发展，很大程度上得益于华南的改革开放，而上海则更多地服务于华东沿海和长江三角洲，目前还将注重缩小东西部差别而为内陆地区的投资服务。香港既是国际资本投资中国的桥梁，也是全球竞争的场所。而上海则更多是国际资本进入中国的一条通道，沪港两个金融中心是在不同条件下发展起来的，因此各自会形成不同的特点，这就是互补性的基础。伦敦是老牌欧洲金融中心，但是后来一些金融中心的崛起，并未削弱伦敦的地位；欧元形成以后，法兰克福作为欧盟中央银行体系的运转中心，但是伦敦国际金融中心的地位依然稳固。在沪港金融关系上，虽然内容不完全相同，但问题的性质也是一样的。当然，两地将形成怎样的分工合作关系，在一定程度上是由未来广泛的市场因素和某些具体政策所决定的，不可能做一个事先的规划。

4.3.4 两种不同的货币将使两个金融中心的发展具有相对的差异性

由于港币的特殊汇率制度和已经形成的地位，香港国际金融中心继续以港币为中心进行运转。由于上海国际金融中心的首要目标是作为国际资本进入中国的通道，是国内的融资中心和金融市场的运转中心，因而是以人民币为中心进行运转的。因此两地将并行发展，在人民币实现完全可兑换以前，不同的货币对金融中心运行特点的影响无疑将更为显著。

4.3.5 “A + H” 股份上市机制为两地的合作提供契机

目前世界已基本形成以纽约、东京、伦敦三大国际金融中心为核心，其它区域性国际金融中心迅速发展的国际金融市场格局。由于国际金融市场之间的竞争，各个区域性国际金融中心纷纷与全球性国际金融中心建立战略联盟，进行国际市场的无缝化交易。同时世界经济一体化，上市公司可以自由选择在世界任何一家交易所融资上市，交易所面临着客户竞争的巨大压力。比如，在美国上市的加拿大证券达到 270 多支，占多伦多交易所百分之二十以上；而在伦敦交易所交易的欧洲股票，占许多国家国内交易量的百分之三十以上。同样的现象，因为上海证券市场的深度和广度不够，导致上海难以承受很多巨型企业的上市资金压力。而在香港上市的国企红筹现市值已达三万多亿港元，占港股市值的百分之四十。而上海证券市场 2005 年的市值一度跌至 23097 亿元，仅为港股市值的四分之一到五分之一。内地学术界一度传出内地证券市场边缘化的危险，上交所曾提出要求暂

停大型企业在港上市、等待上海改革完善之后。但企业处于自身考虑，选择低成本高服务的交易所上市，上海以后要面对的竞争将是全球性的，而不仅仅是香港。在这种大环境下，上交所和港交所建立联盟将是一个明智决策。

香港的经济体制与内地不同，很多业务不可能通过香港的市场来操作，即使香港取得更多内地企业的 IPO 业务，最终香港的经济体系也还是会有别于内地的经济体系。从内地政府官员的表态，工商银行股份已采用“A+H”形式，这将是以后企业上市的最主要模式。这也表明，中国政府决策者深刻意识到上海与香港在金融市场上的差距，但是没有妨碍中国政府将上海打造成为中国金融中心的战略目标。上海的金融业与香港相比，最大问题是金融基础设施落后，金融基础设施包括：法律体系、会计制度、审计制度、信息披露机制、交易与结算系统以及监管机构等等。因为金融市场的繁荣都是与金融支撑系统分不开的。目前，上海的金融基础设施建设不是刚刚开始，就是根本不能满足现实金融市场发展的需要，因此上海要建设成为国际金融中心，必须对金融基础设施进行大的改革和调整。通过“A+H”的上市机制，可以利用香港有效的监管设施，来监管相关的内地股份，从而使得内地的监管水平缩小同香港的差距。在上海的金融基础设施得到全面建设的条件下，最终上海才有望取得国际金融中心的地位。

4.3.6 沪港功能不同可以平行发展

金融中心的功能由市场经济水平、开放性质决定。随着金融业的发展，市场成熟度提高，金融业不断衍生出新市场和新产品，不同发展水平的市场经济需要不同功能的金融服务，也产生不同水平的金融市场和金融产品。香港的市场可作为内地需要的功能性市场——上海的补充，但理论上香港无法取代上海的市场。

而且纵观国际上的各个金融中心，不可能都是同一模式，它们间存在各种功能差异，这些差异正是全球存在多个金融中心、一个地区存在多个金融中心、乃至一个国家都有多个金融中心的原因。世界上没有任何一个国际金融中心功能齐全到可以包揽全球业务。

上海和香港由于市场经济体制不同，经济与货币制度开放程度不同，历史背景不同，二者必然具有功能性的差异。这些功能性差异是两个金融中心平行发展、互补合作的基础。

5. 政策建议

根据路透社（Reuters）的报道，美国总统奥巴马于 2013 年 2 月 12 日宣布美国将就一个全面的跨大西洋贸易和伙伴关系与欧盟展开对话¹。该报道指出如果谈判成功，所达成的自贸区协议将

¹ Obama calls for U.S. free trade pact with European Union, Doug Palmer, Reuters, Feb 12, 2013 <http://www.reuters.com/article/2013/02/13/us-obama-speech-trade-idUSBRE91C08620130213>

把世界最大的经济体美国与其它排在世界前十的国家：德国，法国，英国和意大利整合，以面对来自中国和其它新兴经济体的激烈竞争。美国和欧盟所主导的跨大西洋自贸区建设不仅具有经济利益上的考虑，更具有深刻的政治动机，其目的之一在于主导世界经济秩序。实际上，“无论跨大西洋经济一体化向哪个方向发展，它都将对世界经济的总体环境产生重要影响”，并且“欧美以外的国家，特别是包括中国在内的新兴市场国家应该从战略角度认清，新兴国家的经济崛起正改变着国际政治与经济关系发展趋势”[10]。一旦美国和欧盟所主导跨大西洋自贸区建成，根据目前亚洲自贸区的发展状况判断，其将迅速地被跨大西洋自贸区抛在身后。这也意味着，如果亚洲各国在自贸区建设问题上不尽快行动起来展开切实地合作，以美国和欧盟为主的西方发达国家将会进一步主导世界经贸体系。

建立自贸区有助于消除或减少成员国或地区之间的贸易壁垒以及贸易的专业化分工。亚洲自贸区的建设目前仍处于发展阶段，本文中所提供的多项数据结果暗示亚洲自贸区的建设具有良好的发展前景和较大的发展空间。在目前我国所有已经签订的自贸区协议中，仅三个国家的协议（智利、秘鲁和哥斯达黎加）与亚洲国家或地区无关。

亚洲在地区内商品出口交易中非常活跃，已经超过了北美，但与欧洲相比较仍有较大的差距。欧盟在经济区域一体化方面整体上处于世界领先地位，本报告中所提供的数据表明了欧盟对中国商品进出口贸易的重要性。我国若想在亚洲自贸区建设和发展方面发挥积极的影响和作用并从中获益，应对欧盟在处理类似问题时所获得的经验和教训加以额外的重视。

中国与亚洲国家和地区（特别是东亚国家和地区）的经济联系十分紧密。如果仅从经济角度出发，我国必须重视亚洲自贸区的发展和建设问题，尤其是东亚国家和地区之间的自贸区谈判（例如，日本和韩国）。此外，对已建成或将要建成的自贸区，中国政府在进行相关资源配置的时候应有轻重缓急之分，注重自贸区内进出口商品贸易类别的差异（例如，商品进口中的农产品、能源及矿产品类别等），做到主次有别，更有效率地建设和使用相关资源。

亚洲各国政策制定者或研究者在对区域经济合作程度进行研判时，对外贸易依存度只是需要考虑的因素之一。除此之外，还需考量区域内国家的大小、当前经济发展水平（发达国家或发展中国家）等多种因素的影响。此外，出于亚洲自由贸易区建设的考虑，亚洲各参与国应根据本国的实际经济发展特点和状况审慎地对待国际贸易保护主义政策和手段。

在亚洲金融货币合作方面，东亚金融合作是大势所趋。然而，到目前为止，东亚金融合作仍然处于初级阶段，东亚金融合作仍处于较低层次，远远落后于贸易和投资领域的合作。而对东亚合作的研究也多集中于货币合作方面，在今后的一段时间里，东亚所面临的更为迫切的任务是制定一个切实可行的，又具有长远目标的区域金融合作框架，以推动东亚金融合作实质性发展。

2000年以来东亚各经济体就区域货币金融合作达成共识并在CMI框架下做出了相应的努力。其中包括：建立信息沟通与共同监测机制；清迈倡议的启动及其多元化；发展区域债券市场；区域汇率合作的提出与“亚洲货币单位（ACU）”的设立。东亚各经济体在今后推进产业融合和亚洲区

域协作过程中应重视已有成果，并稳步推进相关工作。

亚洲区域金融货币合作的确已经取得了阶段性成效，面临的挑战主要有以下几个方面：对美元的过度依赖；东亚成为世界债权国；缺乏区域金融监控机制；亚洲金融货币合作的路径有待探讨。

城市竞合是竞争与合作相互融合的动态过程，是城市竞争的高级表现形式。城市竞合主要包括主导产业竞合、旅游竞合、港口竞合、政府竞合、空间竞合等。有研究者提出，双赢机制是城市竞合的重要保证，提高城市间分工程度，形成合理的城市分工合作体系，并按照原有市场规模合理分配分工合作预期收益，可以形成利益协调、竞合共赢的局面。

亚洲主要城市之间应该充分发挥各自的比较优势，进一步推进和带动区域的经济的发展。以上海和香港金融业发展为例，两个城市处理好竞争与合作的关系，能够推动金融业的发展，从而更好地为实体经济服务，带动本地乃至区域经济的发展。

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崛起的亚洲可再生能源： 从新技术、新产业走向新市场

一、研究背景

亚洲可再生能源的发展正在进入关键时期。随着中国、日本、韩国、印度等国家在风电、太阳能光伏、生物质能、智能电网等领域的科技研发、装备制造取得多项突破，亚洲可再生能源的技术水平持续提高、产业规模不断扩大。但与此同时，终端需求不足、高端技术缺乏也成为亚洲可再生能源发展所面临的突出问题：一方面亚洲的可再生能源产业长期依赖欧美市场，本地需求尚无法与其制造能力相匹配；另一方面在大型、先进可再生能源发电系统的设计、制造及运行方面的技术水平也与世界先进水平存在差距。中低端装备制造的“强”与开发利用、高端制造的“弱”使得亚洲可再生能源产业发展在相当程度上依赖于欧美发达国家。这就使得亚洲可再生能源的发展不仅受限于世界经济复苏的步伐，也随时面临发达国家贸易保护政策的钳制以及国际领先新能源企业的竞争压力。本报告拟对亚洲主要经济体可再生能源的总体发展水平、战略重点、政策措施等水平进行全面比较研究，在此基础上重点探讨亚洲可再生能源发展中制度设计的合理性和有效性问题，同时对上海市推进可再生能源发展的战略重点予以分析。

二、当前亚洲可再生能源开发利用现状及趋势分析

2011年数据表明，中国是全球可再生能源发电装机总量最高国家，达70GW，印度和日本分列第6位和第7位，达到20GW和11GW。总体来看，亚洲可再生能源的开发利用呈现如下特点：1、可再生能源的发展主要集中于风电、太阳能光伏发电，生物质发电、水电增速缓慢。2、亚洲太阳能发电项目主要以光伏发电、集热发电项目为主，大规模地面光伏电站占据主导、建筑光伏一体化系统成为新趋势。光热发电处于补充地位，区域分布很不均衡。日本仍然是光伏发电装机容量最高的亚洲国家，占全球总装机的7.1%，中国位居全球第六位，占比4.4%。3、亚洲风电开发利用规模保持高速增长，中国、印度增量贡献巨大，中国位居全球第一大风电装机大国，累计占比

¹ 李俊峰等，2012中国风电发展报告，中国环境科学出版社。

26.24.6%，印度位居第五，占比 6.77%。¹ 风电项目总体向大规模和大容量机组方向发展，小型机组应用不断增加。海上风电机组朝着更大容量和适应深海发电的技术方向发展，中国、日本、韩国均将海上风电作为战略重点。4、亚洲生物质发电较美洲、欧洲国家相比增长较慢，固体生物质发电项目仍然占据绝对主导地位。、亚洲地热能发展以日本为主要代表，总体增长趋势缓慢。4、可再生能源的发展在亚洲人口、资源、经济大国得到高度重视，中国和印度成为继传统优势国家如日本之后的可再生能源发展大国。5、可再生能源产业的发展已经成为发展中经济体如印度、孟加拉国、印度尼西亚等解决农村贫困、增加就业、提高能源公平的有效手段。6、为促进可再生能源发展，亚洲主要资源经济大国确立了可再生能源发展的总量目标，既在电力供应中占比的持续提高，电力市场化改革较为彻底的国家开始建立绿色电力（指可再生能源所发电力）市场，实施上网电价补贴、推动可再生能源发展。

三、亚洲可再生能源技术研发与产业发展现状及趋势分析

亚洲太阳能发电产业与技术发展现状及趋势呈如下特征：1. 太阳能光伏电池的制造继续向中国集聚，但市场集中度有所下降、产业内竞争更趋激烈。欧洲光伏补贴下调导致总体需求不振，主要产品价格快速下滑，全球光伏产业发展受阻，从高速扩张期进入震荡调整期。2、太阳能光伏发电项目仍以晶硅技术为主，但是日本、中国等国家的薄膜电池技术逐渐成熟，且成本较晶硅电池更具有优势，更多亚洲厂商开始加入薄膜电池技术研发和产业发展中、中国、日本、韩国企业开始跻身世界薄膜电池制造巨头行列。3、太阳能光热发电产业仍主要集中于美国和西班牙，亚洲地区正处于加快追赶期，中国、印度均有大规模集热发电项目启动，主导技术仍然处于选择期，以塔式、蝶式发电站技术为代表的新技术还处于示范阶段。

亚洲风力发电产业与技术发展现状及趋势分析：1. 风电制造企业进入市场拉锯战，产业集中度有所下降，亚洲主要风电制造企业着力于抢占、开拓新兴市场。2011 年，全球十大风机制造企业中亚洲占据半壁江山，包括四家中国企业和一家印度企业占据 34.4% 的份额。其他亚洲国家风机制造企业仍无法与欧美企业相抗衡。2. 装备价格下降成为全球普遍现象，一方面受到规模化利用后生产成本下降的影响，但市场结构变化、需求增长相对滞后因素也不如忽视。亚洲风机制造企业由于前期的快速扩张，受到的冲击和调整压力更甚，亚洲的风机制造巨头中国金风、华锐、印度苏斯兰等均面临巨大竞争压力。但从另一角度来看，装备成本的下降也使得风电更具备了与传统火力发电相竞争的可能性。3、随着中小型风机技术的成熟，目前国际上产业发展重点集中于推进大功率风机的研发和规模化应用，特别是适用于海上风电发展的 5 兆瓦以上大型风机。而中国、印度的风机制造企业在 6MW 以上风机制造领域尚处于落后地位。

亚洲作为生物质能利用产业与技术发展现状及趋势分析：1、固体生物质产业方面，北美和欧洲占据主要地位，中国、印度、日本在传统利用之外，在大型发电项目上也迅速发展；2、在沼气

产业方面，欧洲沼气生物质能产量迅猛增长，亚洲主要以中国、印度、斯里兰卡、菲律宾等国家发展较多；3、在液化生物燃料如生物柴油产业方面，美国、巴西和欧洲占据主要地位，亚洲的技术发展路径仍不确定，但总体原则是发展非粮液体生物燃料。

四、亚洲促进可再生能源开发利用的政策与保障措施研究

可再生能源的发展既需要科技创新的不断突破、也需要新兴市场的持续培育。亚洲主要经济体在推进可再生能源规模化发展的国家战略方面基本秉承“政府推动为先，法律保障为基、市场竞争为主和科技创新为要”的总体原则。但各国必须要考虑自身的资源禀赋特征、科技研发水平和产业发展基础，因此在具体发展目标、推进步骤和实施重点方面则有所不同。

4.1 亚洲促进可再生能源发展的规制性政策研究

制定发展战略或发展路线图是世界上大多数国家的成功经验。许多发达国家发展可再生能源的思路是：国家制定一定阶段的可再生能源的具体发展目标和计划，在发展目标框架之下，制定一系列的优惠政策，并通过市场经济的手段鼓励各界投资和利用可再生能源。

（一）中国

中国到 2020 年的可再生能源发展目标是：提高可再生能源在能源消费中的比重，解决偏远地区无电人口用电问题和农村生活燃料短缺问题，推行有机废弃物的能源化利用，推进可再生能源技术的产业化发展。总体发展战略是充分利用水电、沼气、太阳能热利用和地热能等技术成熟、经济性好的可再生能源，加快推进风力发电、生物质发电、太阳能发电的产业化发展，逐步提高优质清洁能源在能源结构中的比例，力争到 2015 年使可再生能源消费量占能源消费总量的比重提升至 11.4%，到 2020 年达到 15% 左右。2013 年公布的《十二五能源发展规划》提出，到 2015 年可再生能源发展的预期目标分别是：水电 2.9 亿千瓦，年均增长 5.7%；风电 10000 万千瓦，年均增长 26.4%；太阳能发电 2100 万千瓦，年均增长 89.5%。

现阶段中国可再生能源发展的重要任务是提高技术水平和建立完善的产业体系。到 2020 年，要建立起完备的可再生能源产业体系，大幅降低可再生能源开发利用成本，为大规模开发利用打好基础。到 2020 年，形成以自有知识产权为主的国内可再生能源装备能力，要使可再生能源技术具有明显的市场竞争力，使可再生能源成为重要能源供应来源。

（二）日本

日本在福岛核事故后，提出 2020 年前可再生能源发电要满足 20% 电力需求的目标。日本政府 2012 年公布了实现可再生能源飞跃发展的新战略，目标是到 2030 年使海上风力、地热、生物质、海洋（波浪、潮汐）四个领域的发电能力扩大到 2010 年度的 6 倍以上。从各领域的发电能力来看，海上风力发电能力要由 2010 年度的 3 万千瓦提高到 2030 年的 803 万千瓦，地热发电要从 53 万千瓦提高到 388 万千瓦，生物质发电由 240 万千瓦提高到 600 万千瓦，目前尚处于研究阶段的海洋能

源发电也要提高到 150 万千瓦。此前日本表示太阳能发电长期目标是 2020 年发电 2800 万千瓦，相当于 2012 年的 20 倍；2030 年发电 5300 万千瓦，相当于 2012 年的 30 倍。

为了实现这个目标，海上风力发电要在 2020 年前使浮体式风力发电技术实用化；地热和生物质发电要采用发电效率更高的新技术；波浪能和潮汐能要在 2020 年前开发出相对成熟的技术。日本政府预期如果可再生能源实现新战略所规定目标，即使没有核电也能够满足日本电力需求。

（三）韩国

韩国提出到 2030 年可再生能源占全部能源生产的比重将提高到 11%，而韩国 2010 年底时此比重仅为 2.4%。2010 年 3 月实施的可再生能源应用标准（RPS）要求 14 家能力超过 500MW 的国营和私营发电公用事业企业，到 2015 年可再生能源比重占到 4%，到 2022 年要增加到 10%。这一方案强制性要求到 2016 年可再生能源增加 350MW/年，到 2022 年，可再生能源增加量将达到 700MW/年。

（四）印度

印度政府计划委员会发表的《能源综合政策报告（IEPR）》提出，到 2031-2032 年，可再生能源在印度能源构成中所占份额为 5%-6%。

2011 年印度政府表示从 2012 年起，五年内将增加 1.7 万兆瓦可再生能源的发电装机容量。2011 年已在全国完成了 20 吉瓦的可再生能源发电装机容量，占装机容量的 11%，估计印度需要 1.5 万亿卢比（336 亿美元）的投资，来完成第 12 个五年计划中新增发电装机容量的目标。

4.2 促进亚洲可再生能源发展的激励、引导性政策研究

5.2.1 价格机制研究

当前国际上存在的可再生能源价格机制主要有固定价格制、浮动价格制、强制配额和交易制、绿色能源价格制。固定价格即政府直接明确规定各类可再生能源产品的市场价格。一些国家采用浮动价格，以常规电力的销售价格为参照系，制定一个合适的比例，然后随常规电力的市场变化而浮动。通过强制配额（即要求能源企业在生产或销售常规电力的同时，必须生产或销售规定比例的可再生能源电量）和交易制度（政府对企业的可再生能源发电核发绿色交易证书，绿色交易证书可以在能源企业间买卖，价格由市场决定），发挥市场自身的调节作用，达到提升可再生能源产品价格的目的。此时的可再生能源发电价格为平均上网电价与绿色交易证书的价格之和。绿色能源价格其价格形成机制是由政府提出可再生能源产品的价格，由能源消费者按照规定价格自愿认购。

当前，中国主要采用固定价格制。风电固定区域标杆价按风能资源状况和工程建设条件，根据全国各地风能资源不同状况分为四个区域，四类资源区风电标杆电价水平分别为每千瓦时 0.51 元、0.54 元、0.58 元和 0.61 元。而生物质发电采用统一执行标杆上网电价每千瓦时 0.75 元。而光伏发电上网电价均按每千瓦时 1 元执行。日本也实行固定价格制，其由各个电力公司负责收购规模为 500kW 以下家庭和企业的太阳光发电设备的剩余电力。《关于电气事业者采购可再生能源电气的特别措施法》规定，除了太阳能发电外，电力公司收购的对象扩大到风力、水力、地热、生物质发电等。

5.2.2 财税机制研究

财税工具可以矫正市场失灵,对能源投资和消费行为有巨大的导向力。经济激励是当前推动可再生能源发展最常用政策,其思路主要是通过财税政策来实行,财税政策包括正向和反向两方面。

正向激励政策主要包括:(1)国债资金投入政策。国债资金一般重点投向基础性产业,而能源、节能等在任何国家都属于国民经济的基础,应在国债中占一定份额。(2)财政贴息和补贴政策。财政贴息和补贴可以通过少量财政资金的直接和间接投入,引导更多的社会资本投入到可再生能源领域。财政贴息一般适用于项目,或者说是与可再生能源相关的供应、转换、储运与节能有关的生产者;财政补贴则不然,既可以补贴给生产者,也可以给下游的消费者。(3)税收优惠政策。一般常用的税收优惠政策是增值税优惠或实行增值税返还政策,但这一政策要注意限定范围,防止过多过滥的现象;此外,所得税优惠和进出口税优惠(对关键设备)也是常用的政策。(4)政府采购政策。重点是支持可再生能源与节能产品。(5)财政担保政策。财政担保是运用风险投资的原理支持可再生能源领域。基于供给需求基本原理,由于可再生能源的成本过高,能源的供给量由非可再生能源满足,市场处于均衡状态。为了推广可再生能源,政府采取经济激励政策,使得可再生能源企业可以承担市场价格降低,同时能源供给量上升,规模经济效应产生,因此,可以有效促进可再生能源发展。但是,必须注意的是,政府正向的经济激励要有效地达到其低于非可再生能源价格之间的差价,才能使得经济激励政策发生作用。

逆向限制政策主要包括:(1)扩大消费税征收范围;(2)开征燃油税;(3)开征能源税;(4)改革破产资源补偿费的征收办法;(5)对高耗能产业尽快取消财政补贴制度。逆向限制政策是将传统的非可再生能源所带来的环境污染和生态成本这些外部成本内部化。通过对可再生能源的竞争对象发生成本提升的作用,引起能源市场上供给价格和供给量的变化,从而带来可再生能源市场机会的增加。

目前,中国通过全国征收的可再生能源电价附加来对于风电、光伏发电、生物质发电以统一标杆上网电价进行电价补贴,此外,还从财政拨款,设立“金太阳”项目,对光伏系统建设进行初建补贴。此外,设立发展专项资金用于资助可再生能源开发利用的科学技术研究、标准制定和示范工程、促进可再生能源开发利用设备的本地化生产等活动。日本自1993年开始实施“新阳光计划”,用财政补贴以加速光伏电池、燃料电池、氢能及地热能等的开发利用,而后再推行百万屋顶计划,用财政收入用于光伏系统的初建补贴。

税收政策在扶持中国可再生能源开发利用方面发挥的作用不是很大,只是在个别领域里有一些具体的体现,主要包括:小水电增值税按6%征收、风力发电增值税减半征收、对部分国内尚不具备生产能力的可再生能源发电设备和零部件进口实行免税或低税率,例如对光伏电池、大型风力发电设备的关键部件的进口等。

5.2.3 金融支持体系构建研究

低息或贴息贷款等金融政策可以减轻企业还本期利息的负担,有利于降低生产成本,但政府

需要筹集一定的资金以支持贴息或减息，贷款数量越大，贴息量越大，需要筹集的资金也越多。因此，资金供应状况是影响这一政策持续进行的关键性因素。

当前，中国除了对可再生能源的研究开发、示范项目建设和可再生能源关键设备制造的产业化给予经费支持外，中央政府还通过国债支持可再生能源的开发利用，原国家经贸委的国债风电项目即是利用第四批国债专项资金，将国产风力发电机组示范电场建设项目纳入2000年国家重点技术改造项目计划，此外，还设立了农村能源专项贴息贷款，用于小型风力发电、太阳能热利用技术和大、中型沼气工程的推广应用，对小水电建设安排一部分低息贷款。中国还把可再生能源产业的发展纳入了双边和多边援助的优先领域，利用国外的优惠贷款支持了一批可再生能源项目。日本也为企业新能源设备更新和技术开发提供低息贷款。

4.3 亚洲可再生能源贸易便利化机制研究

世界各国特别是一些大国纷纷制定相关法律和政策，发展本国的可再生能源产业，促进本国的可再生能源的开发与利用。然而随着全球化进程包括可再生能源在内的各种新兴产业已经通过国际贸易形成了全球供应链，一个国家或者地区对当地的新能源设备产品扶持性政策，可能会对已有的国际贸易机制带来冲击，造成国际贸易机制中各方的利益冲突。由于新能源产业政策和措施既涉及到应对气候变化又涉及到维护自由贸易的国际法，可再生能源产业措施的确立和实施不仅是一个国家的国内法问题，还涉及到诸多国际法问题。因此不论是在应对气候变化的国际法体系下寻求授权性规则的有效性，还是在世贸组织原则规则下分析是否违反WTO涵盖协定，有关可再生能源的产业措施的实施都将面临国际法的检视，有关国家法律和政策的出台也应未雨绸缪，避免引发贸易争端。亚洲各国，在制定相关促进措施时必须充分考虑国际法特别是世贸组织组织法的约束，避免引起国际贸易争端造成不必要的被动，同时也要充分利用世贸组织规则维护我国可再生能源产业的利益。

五、促进亚洲可再生能源发展的关键对策建议

针对亚洲可再生能源发展的形势和面临的主要挑战，本研究报告重点提出了三个关键的政策突破方向：1、通过严格的强制上网制度确保可再生能源发电得到有效的消纳；2、通过灵活的分类电价制度使可再生能源投资能够获得稳定、合理的收益、逐步培育相较传统火电的市场竞争力；3、通过费用分摊制度使政府、企业和终端用户能够共同承担可再生能源发展的收益和风险。研究报告建议亚洲国家应加快可再生能源发展法律体系建设、确保强制性制度的规制性；要深化能源市场化改革，尽快建立绿色电力市场，引导对于可再生能源资源的合理配置；要消除不必要的贸易壁垒、提高可再生能源设备国际贸易的便利度，建立亚洲共同市场来助推可再生能源的规模化发展。从而最终推动亚洲实现从传统制造向绿色制造的历史性跨越！

六、上海推进可再生能源发展的战略重点

近年来，上海市有关部门贯彻落实国家《可再生能源法》，先后出台了《上海市绿色电力认购营销试行办法》、《上海市开发利用太阳能行动计划》、《上海市可再生能源利用抵扣用能量测算试行办法》等多项政策和规范性文件，力争通过发挥政府先导作用，激励、引导、规范上海市可再生能源的发展。

1、在政府积极推动、市场主动参与、各界协同推进下，上海市“十一五”期间在可再生能源开发利用、产业制造、科技研发等领域均取得了突破性进展。

(1)、开发利用形成一批标志性项目。东海大桥 10 万千瓦海上风电场并网发电，成为亚洲首座大型海上风电场，全市风电装机达到 21 万千瓦，是“十五”期末的 9 倍左右。建成世博园区中国馆和主题馆光伏建筑一体化（BIPV）发电项目，以及国内最大的屋顶光伏发电项目——京沪高铁虹桥站 6.7 兆瓦光伏发电项目，全市光伏电站装机达到 20 兆瓦，太阳能热水器集热面积达到 350 万平方米。建成 2.5 兆瓦老港垃圾填埋气发电一期项目，全市生物质能发电装机容量达 4.5 万千瓦。在世博轴中成功实现浅层地热能和江水源热泵技术的集中应用。2010 年，全市非化石能源上海的非化石能源包括本地开发的风电、太阳能发电等新能源（不含太阳能热水系统），以及按国家计划分配的外来水电、核电。占一次能源消费比重达到 6%

(2)、产业制造形成多个优势性领域。上海市明确将核电、风电、光伏发电和智能电网等作为战略性新兴产业发展的重点领域。吸引国内外具有实力的新能源企业落户，具备了大型海上风机自主开发能力，2 兆瓦陆上风电机组实现产业化，3.6 兆瓦海上风电机组获得首个订单，初步形成以风电设计、制造、安装、维护和咨询为一体的风电工程技术服务体系。建成国内第一条 50 兆瓦硅基薄膜太阳能电池生产线，开工建设吉瓦级高效晶体硅光伏产业基地。

(3)、技术研发取得多项重要突破。3.6 兆瓦海上风机样机下线并安装试验，成为国内实际运行最大单机容量的风电机组，已形成 3.6 兆瓦海上风机自主开发能力和风力发电技术研发团队。高效晶体硅电池、兆瓦级光伏并网发电等技术获得重点突破，薄膜太阳能电池研究水平国内领先，等离子体化学气相沉积镀膜（PECVD）和低压化学气相沉积镀膜（LPCVD）等薄膜电池核心设备研制成功，在国内率先制定了红外检测等应用标准及测试规范。在国内率先研制了 650Ah 钠硫单体电池，已建成年产 2 兆瓦的钠硫电池中试线，并开展了 100 千瓦示范工程，钠硫电池储能技术研发取得领先优势。

2、上海市在可再生能源发展中实现多个“第一”的同时，也面临着一系列挑战、问题。在这样一个战略转型期、机遇期、有必要研究分析前期发展困难和瓶颈、谋求新的发展动力。

(1) 资源可利用量有限、与国内主要资源大省差距较大。上海新能源资源禀赋一般，受土地、环境等约束，可利用资源与全市能源消费总量相比十分有限。与国内主要风电、光伏大省相比，在资源禀赋上差距很大。以上海市

(2) 受应用条件、基础设施、要素成本等影响，综合开发成本较高。与常规能源相比，新能源开发利用成本偏高；而且由于规模经济效益不明显，与优势省份相比也明显处于成本高位，

在电价不能有效疏导的情况下，新能源产业的竞争力不强成为制约其发展的主要因素之一。

(3) 核心技术比较缺乏、有技术而无产权、有技术而无应用的问题比较突出。尽管上海已具备一定的新能源技术研发和装备制造能力，但核心设计、工艺、材料和系统集成等技术还比较缺乏，自主创新能力有待于进一步提高。四是体制机制尚需突破。分布式电网接入、管理模式创新等方面配套支持相对较少，新能源进一步规模化发展受到现行相关体制机制的制约。

(4) 政策支持的针对性、连续性、灵活性、协同性有待加强，在助推新能源发展产业化、市场化的关键跨越上需要有待进一步加强。“十一五”期间上海崇明县获国家首批“国家绿色能源示范县”称号，并得到中央财政专项资金支持。国家能源海上风电技术装备研发中心、国家能源智能电网(上海)研发中心、国家能源核电站仪表研发与试验中心等一批国家级研发中心相继落户。在政策方面则先后出台《关于促进上海新能源产业发展的若干规定》和《上海推进新能源高新技术产业化行动方案》，成立了新能源创业引导基金，重点支持新能源装备制造业发展。制定了《上海市新能源和可再生能源发展专项资金扶持办法》，全力支持新能源应用示范。但是总体来看，政府大量先导性投入还没有助推新能源产业完全跨越从技术研发到产业化应用的“死亡之谷”，各类示范项目在真正走向市场的过程中，仍然没有构建起自身的竞争优势、未来支持机制的优化和政策支持的“靶向扶持”机制将直接关系到可再生能源发展实现实质性跨越。

3、世界新能源发展方兴未艾，经济危机的深化发酵促使世界主要资源经济大国谋求再工业化过程，纷纷将新能源产业作为经济复苏、产业振兴乃至产业革命的战略引导方向，上海在创新驱动、转型发展的关键阶段要尽快抢占新能源技术制高点、建立新能源制造产业优势，避免与新一轮产业变革擦肩而过。

(1)、新能源与信息技术的融合，有可能成为新的产业变革的主导方向。进入本世纪以来，关于“新产业变革”究竟以何种范式触发全球经济的新一轮增长，以及最终是否会推动“第三次工业革命”的全面爆发，成为世界各国政府和产业界最为关心的问题。众多迹象表明目前已经显现出巨大增长能量的信息产业与日渐发酵成熟的新兴能源产业有可能通过全方位的融合成为点燃第三次工业革命的火种。新兴能源产业所依赖的技术范式主要以分布式、间歇式能源利用为核心特征，突破了传统大型火力发电机组与大范围电网系统所构架的集中式的能源供应模式。这种技术变革最大的意义在于显著提高了能源转换效率，将一般火力发电以及网络传输所造成的近50%至60%的能源损失降低到20%至30%以下。而从经济意义上而言，这种技术革命事实上颠覆了传统电力部门天然垄断的合理性基础：集中式供电系统所依赖的规模经济和网络经济并非不可突破，分布式能源的发展恰恰是强调从集中投资转向平行投资，藉由技术效率的提升实现要素的规模报酬递增。同时从制造成本而言，随着应用规模的逐步扩大，投入要素市场的规模经济带来大幅度的成本下降，分布式能源的经济效率进一步得到凸现。

(2)、传统能源的新型利用技术以及非常规能源的异军突起增加了可再生发展前景的不确定性，如不尽快进入规模化、产业化发展，可再生能源发展前期的大量资本投入可能长期沉淀。

目前大多新能源技术尚未完全成熟，成本仍高于化石能源；而传统化石能源部门一直在积极探索清洁、高效利用技术，洁净煤技术、IGCC 技术等都是可再生能源的有力竞争者；另一方面非常规天然气—页岩气在美国的大力发展同样使得全球低碳变革的技术路线受到重大技术冲击，各国都在研究由此带来的影响。在这样一场竞赛中，新能源必须要提高其市场竞争力，占据能源消费的更高市场份额，逐步从补充能源向替代和主力能源过渡。以上海市目前着重发展的海上风电为例，其规模化发展即面临严酷竞争环境，一方面其投资和运行成本都显著高于陆上风电，而有效降低成本的超大型海上风机技术中国还未掌握。另一方面在需求侧同样面临并网安全性、稳定性等问题，且随着应用规模扩大，技术难度会进一步增大。

(3)、日本、德国的去核化过程以及其他欧洲国家对于核电的审慎态度都对全球能源供需体系的清洁化、低碳化路径产生了深远影响。总体来看，全球各国对于核电发展的审慎态度使得全球核电发展进程放缓已经是不争事实，这无疑给风能、太阳能、地热能等其他新能源产业加速发展带来重大机遇。

(4)、上海市的产业转型要顺应国际大势、发挥自身优势。前期上海市在风电设备制造、光伏系统集成、智能电网、储能电池等方面都率先进行了技术示范和产业化初探。未来上海市既要根据自身条件扩大可再生能源利用的规模，也要以此为基础，大力发展相关设备制造、关键技术集成、衍生服务模式开发等产业。

4、国际气候变化谈判、国内节能减排工作都对上海可再生能源的加速发展提出了更高要求，可再生能源大规模利用是我国实现低碳转型、建设生态文明、走可持续发展之路的正确方向。上海市作为我国改革开放的前沿阵地，应该率先探索建立更为有效的促进可再生能源发展的政策体系，为国家的战略决策提供可借鉴经验。

(1) 随着国际社会对温室气体减排的呼声越来越高，限制化石能源消费，鼓励能源节约和清洁能源使用，加速调整能源结构，积极开展新能源开发利用成为各国能源战略的重要取向。我国尽管尚未就温室气体的绝对减排量做出承诺，但是就碳排放强度进行约束已经成为“十二五”正式目标。因此可再生能源的发展已经不仅仅是义务性质，也不能单纯依靠市场自发或者政府推动；而是具有一定的强制性质，既有《可再生能源法》规制，又有“十二五”目标考核，其直接规制性显著增强。

(2) “十二五”是上海加快推进“四个率先”、加快建设“四个中心”的关键时期。上海市提高非化石能源比重的任务十分艰巨，必须探索新的机制、体质创新。按照国家“十二五”规划要求，非化石能源占一次能源消费量比重是约束性指标，上海市需要比十一五末提高近 6 个百分点。这对上海无疑提出了重大挑战。由于上海市新能源的能源密度低且价格相对较高，并受到土地、岸线等资源条件约束，大规模发展陆上风电等新能源受到限制、建筑光伏一体化系统未获市场青睐、核电发展放缓加大上海市争取市外核电、水电的难度。上海市完成“十二五”这一目标的任务更加艰巨，如何使得新能源在众多不利条件下获得长足发展，上海市需要探索一条占地少、立体式、多

元化、多主体开发的新模式，通过成本分摊、风险分散来降低高成本，通过网络化、集约化来克服土地空间约束、通过多层次服务系统和产业的开发使之带动更多产业发展，克服产业“挤出”效应、催生新的经济增长点。

上海在可再生能源如海上风电、大规模光伏建筑等的开发利用方面创造了多个“中国”第一、“亚洲”第一；但“上海”模式也是政府主导、集团作战的典型；上海的经验与不足，既为中国乃至亚洲可再生能源在沿海超大型城市中的应用提供了典范，也是探索解决可再生能源需求不足的制度设计与市场创造途径的鲜活案例。上海市要着力强化其在海上风电发展中的先发优势，率先探索体制、机制变革。在继续扩大开发利用规模的同时，着力推动海上大型风机制造业、海上风机装备船只制造业等战略性支柱产业的发展，依托上海的装备制造优势，引领亚洲海上风电发展的先机！

气候变化与环境保护：人类关注的焦点

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全球变暖与气候变化是影响人类文明可持续发展的重要问题。全球气候变暖已经成为国际社会关注的焦点，也引起民众的普遍担忧。中共十八大提出美丽中国的概念，使得环境问题再次成为社会热点。建设生态文明型社会已经成为中国现代化必然的战略抉择。从历史时期的经验来看，气候变化对于人类文明发展所产生的影响极为深刻，这其中既有人类对自然资源不合理开发的原因，也包含气候条件自身周期性变化的作用。对气候变化的长时段研究有助于理解当前的气候变化和环境问题的实质。2007年IPCC第四次评估报告认为，人类不合理的温室气体排放是造成的近半个世纪全球气候变暖的主要原因。尽管国际社会对全球气候变暖问题的成因仍有争议，但越来越多的人认可人类不合理的经济活动对全球气候变暖造成深刻的影响。合理控制温室气体排放，以减缓和适应未来气候变暖的观点逐渐取得共识。全球气候变暖问题及其应对绝非单纯的自然科学问题，而是涉及到政治、经济、生态、公共卫生、社会、历史乃至社会公正等道德理论问题，因而从多学科合作的视角，加强跨学科的合作与交流，才能更有效地理解和应对气候变化造成的诸多问题。急剧变化的气候变化给亚洲的发展带来新的危机和挑战，极端气候越发频繁，环境形势日益严峻，成为亚洲国家和地区所面临的共同危机。必须加强国家和地区之间的协作，并开展政府、企业、民众、社会组织间的对话、交流与合作，促进多学科的共同参与，探索新的合作性环境治理模式，以应对当前气候变化对人类发展带来的新挑战。

一、气候变化的历史与现实

从历史经验看，气候变化极大地影响着人类文明发展的进程。古埃及文明、迈锡尼文明、巴尔米拉文明、格陵兰文明和玛雅文明等都在气候的急剧变化中走向消亡¹。在这个过程中，尽管人类不合理的社会经济活动对生态环境的破坏难辞其咎，但自然环境自身周期性变化造成的影响也同

¹ 布雷特·辛斯基著，蓝勇等译：《气候变迁与中国历史》，《中国历史地理论丛》，2003年6月。

样不容忽视。对中国历史时期气候变化的研究显示，历史上曾出现多次冷暖交替的气温变化，而这种气温波动对中国历史的发展曾产生过深远的影响。早在上世纪七十年代末，著名气象学家竺可桢先生就利用中国古代丰富的文献资料，对历史时期的气温变化进行探讨，并绘制了气温变化曲线¹。新近的学者们运用冰芯、树木年轮、孢粉、湖泊沉积物以及文献资料等多种代用指标，建立了中国近两千年的气温变化曲线。这些研究表明，中国历史上气温曾出现几次大规模的冷暖交替变化。其中，中世纪暖期（900—1300年）的气温可能与20世纪平均温度相当，而明清小冰期（1550—1850年）则可能比20世纪低1.0—1.5℃。从中国的经验看，历史上气温的周期性波动是一种常态。

气温的波动对人类社会产生了深刻的影响，近些年随着近些年对全球气候变暖的关注日益加深，这种影响也逐渐引起人们的注意。历史时期气候变化的影响并非局限在对自然环境的影响，通过降水、热量的重新分配，气候变化引起农业生产格局的重新调整，而这在以农业立国的传统时代，对政治、经济、社会、文化等造成的影响是极为深远的，这点在以往的人文社会科学的研究中基本被忽略。香港学者章典的研究揭示了气温变化与人口繁衍、战争、王朝更替之间存在着高度的相关性²。在气候温暖期，由于水热条件充沛，有利于农业生产和粮食供应，带来相对稳定政治形势。历史上两汉时期、隋唐时期长时间的安定可能与相对温暖的气候有关。中国古代战争很大部分是来自与北方少数民族之间的冲突。气候寒冷时期，农牧分界线必然南移，北方草原水热条件不足以维持正常的游牧生产，少数民族不得不南迁寻找新的牧场，这就容易引发农耕民族与游牧民族之间的冲突和战争。气温的变化对粮食产量和价格的影响也是显著的。历史上的农民战争尽管与王朝统治的腐败和苛政关系密切，但是许多农民战争爆发的直接原因是粮食不足。而气候寒冷时期以及冷暖交替时期引起的气候不稳定对靠天吃饭的农业生产造成严重威胁，造成粮食短缺和饥荒，成为战争爆发的重要诱因。在传统人口体系中，战争、瘟疫、饥荒严酷地抑制着人口的增长，马尔萨斯现实性抑制在历史的中国频繁出现。据章典的统计，历史上人口崩溃的出现与战争、王朝更替具有高度的一致性，而这些同时又与气温变化曲线之间具有高度的一致性，且集中出现在气候寒冷期和冷暖交替阶段。

中国历史上气候的周期性变化，不仅对生态环境造成影响，而且对粮食的价格波动、人口的崩溃、战争的爆发、王朝的更迭乃至整个文明重心的转移，都产生了难以估量的影响。在历史温暖时期，往往是人口繁衍、王朝安定、社会繁荣的阶段，而当气候走向寒冷时，则带来自然灾害的多发、经济衰退和社会动荡。尽管目前气候变化的历史时期人类社会发展的影响机制尚未明确，但其产生的影响则是不容忽视的，甚至是决定性的。

¹ 竺可桢：《中国近五千年来气候变迁的初步研究》，《中国科学》，1973年2月。

² D. D. Zhang et al., Climate change and large-scale human population collapses in the pre-industrial era, *Global Ecology and Biogeography*, (Global Ecol. Biogeogr.) (2010), pp.1–12.

D. D. Zhang et al., Global climate change, war, and population decline in recent human history, *PNAS* December 4, 2007, vol. 104, no. 49.

上述气候与历史、人口、政治等人文学科的交叉研究，得出了完全出乎传统学科意料的结论，也将全球气候变暖研究引向了另外一种乐观的情景。因为根据历史上的经验，至少可以得出两点关于气候变暖的不同观点：第一、气温变化是存在周期性的，冷暖交替是正常现象，在经历了近五百年的明清小冰期后，20世纪以来的气温的持续升高，有可能是这种周期性变化的表现；第二、气候变暖似乎并不是一件坏事，因为历史上温暖期的社会秩序与人口发展要比寒冷期好得多，而灾害、战争、王朝更替、人口崩溃往往发生在寒冷期，而不是温暖期。

历史的经验为我们打开了一扇窗，使我们可以看到全球气候变暖的另一个侧面。然而，同样不能忽视的是，20世纪以来的全球气候变暖具有历史时期所没有的特殊性，工业生产过程中大量使用化石燃料造成的环境问题是农耕社会所不具备的。进入工业文明以后，人类已经将自己从自然中剥离出来，站在了自然的对立面，开始驯服自然，而不再是在农业文明时代对自然的完全依赖。工业文明对自然环境的改造是前所未有的，人与环境互动关系在工业文明时代必然与传统农业时代有诸多的差别。

全球气候变暖问题从一开始就充满了争议，人们不仅质疑全球变暖是否客观存在，更重要的是质疑人类活动的尤其是碳排放究竟对气候变暖发挥多大的作用。为了说明气候变暖的趋势和程度，科学家们力图建立长时段的历史气温变化序列，根据不同的代用资料和计算模型，不同的科学家得到的历史气温变化序列存在较大的差别。其中 Mann M.E. 团队建立的北半球千年序列显示，近千年来北半球温度处于缓慢下降的过程中，到20世纪才突然上升，力图证明最近几十年的气温升高是近千年来所未有的。¹ Mann 等人的气温序列被 IPCC2001 年第三次气候报告所采纳。不过，任何代用资料数据都存在一定的缺陷，Mann 的温度曲线也遭到不少人的质疑，如果按照 Mann 的温度曲线，无疑是否定了公元800–1300年的中世纪暖期(MWP)以及公元1300–1900年小冰期(LIA)的存在(在中国分别对应唐宋温暖期和明清小冰期)。Soon W. 等人就通过139个古气候序列证明中世纪暖期和小冰期的客观存在，20世纪的气温变化也没有 Mann 曲线所显示的那么夸张。² 越来越多的研究表明，根据冰川长度及由钻孔测得垂直温度分布计算的地面温度变化进一步证实了20世纪气候变暖的事实。此外，一系列的环境变化如冰川、冻土、积雪、极冰、动植物生长均说明20世纪的气候变暖是无可争议的，20世纪最后25年的变暖甚至有可能是近千年来最强的。³ 气候的转暖以及由此带来的暖冬天气和夏季极端高温，不仅表现在科学测量数据上，而且也被普通民众所切身感受。极端高温频频出现使普通民众更容易接受气候变暖的观念。公共传媒对全球气候变暖问题的参与和

¹ Mann M E, Bradley R S, Hughes M K. Global-scale temperature patterns and climate forcing over the past six centuries [J]. *Nature*, 1998, 392:779–782.

² Soon W, Balinas S, Idso C, et al. Reconstructing climatic and environmental changes of the past 1000 years: reappraisal [J]. *Energy and Environment*, 2003, 14 (2/3): 233–296.

³ 王绍武等：《近千年全球温度变化研究的新进展》，《气候变化研究进展》，2007年1月。

宣传,使得该问题日益取得民众的支持。许多科学家认为,气候变暖是毋庸置疑的事实。

比起是否变暖,对导致气候变暖的原因的争议则更加激烈。争论的核心是气候变暖究竟是自然变化还是人为造成,或者自然因素与人为因素各自发挥多大的作用。实际上,在农业时代,受太阳活动、火山、洋流、ENSO等因素的影响,气温也在不断变化中,不可否认,近代工业文明的开展,广泛使用矿物燃料,大量排放温室气体,对气温的变化产生新的影响,但太阳活动等自然因素仍然发挥着重要作用。对于这个问题,由于自然科学在研究数据上存在不确定性,使得科学家们对人类活动是否是造成全球气候变暖罪魁祸首的观点始终存在争议。

最近几年,越来越多的科学家趋向于认同人类活动对全球气候变暖的主导性影响,尽管太阳活动等自然因素仍发挥着作用。尤其在2007年联合国政府间气候变化专门委员会IPCC发布其第四次全球气候变暖报告之后,尽管不同的声音依然存在,人类活动是气候变暖主要因素的观念逐渐取得科学界的共识。从IPCC公布的气候变化报告也可以看出国际社会对于气候变暖问题认识的变化过程。1985年至今,IPCC共发布了四次气候变化研究报告。在这四次报告中,IPCC越来越确信人类活动在气候变化中所发挥的主要作用。1985年第一次报告认为气候变暖是人类活动和自然波动共同作用的结果;1995年第二次评估认为气候变暖中的许多问题尚有待确定;到了2001年第三次报告时,IPCC就以较为明确的态度称,过去50年的全球气候变暖的大部分(66%)归因于人类活动;2007年第四次评估报告则进一步确认,气候变暖很可能(90%)是由于人类活动所造成的。¹预计到2100年,全球气温将上升大约1.4-5.8°C,而这其中,工业活动大量排放的温室气体是引起全球气候变化的最主要因素。IPCC的研究数据显示,自1750年以来,全球大气中二氧化碳浓度值从工业化前的约280ml/m³增加到2005年的379 ml/m³,甲烷浓度值从工业化前的约715 × 10⁻³ml/m³,增加到2005年的1774 × 10⁻³ml/m³,氧化亚氮浓度从工业化前的约270 × 10⁻³ml/m³增加到2005年的319 × 10⁻³ml/m³。各种温室气体的浓度显著提高,进而导致了全球气温的上升。

目前,人类活动造与自然变动在气候变化中各自起到怎样的作用仍是一个需要深入研究的问题。实际上,全球气候变暖问题的争论,并不仅仅是由于气象科学研究本身不同方法和手段的差异所导致,更深层次的分歧,来自于不同的政治立场、经济利益、国家需要、媒体导向、乃至宗教文化观念的差异。如果从不同利益立场出发,而不是从客观事实的立场来看待全球气候变暖问题的话,就必然造成争议,甚至对同一数据的截然不同的解读。气候问题远不仅是一个科学问题,更是一个政治问题、外交问题、经济问题、社会问题等涉及到许多方面。因此,深入开展研究和讨论,不仅要求气象学家继续完善气温数据的采集和模型的开发,发掘新的温度代用指标(如古降水资料等),而且还需要开展多学科、长时段、多领域合作研究,才能准确把握气候变化问题,形成合理的应对方略。

¹ 秦大河:《气候变化对我国经济、社会和可持续发展的挑战》,《外交评论》,2007年8月。

二、全球气候变化中的亚洲环境危机

亚洲人口总量巨大，沿海地带人口稠密，在全球气候剧变过程中，亚洲所面临的环境威胁更加严峻。以全球气候变暖为主要特征的气候变化，将给亚洲造成严峻的生态环境危机：

1、水资源短缺。全球气候变暖可能导致许多亚洲国家面临更加突出的水资源供需矛盾，并由此引发国际争端。据估计，亚洲东部气温升高 1°C ，农业灌溉需水量将增加6—10%以上，如果升温 3°C ，那么南亚、东南亚及中国南部多条大河的源头喜马拉雅山冰川将岌岌可危。青藏高原冰川的融化将给整个亚洲生态系统造成难以估量的严重后果。若 CO_2 浓度加倍，温度上升 1.5°C ，中国干旱区面积扩大18.8万 km^2 。在干旱年份，将大大加剧华北、西北等地区的缺水状况，水资源形势趋于严峻。1950年以来，我国6大江河的径流量减少，其中海河降幅最大，每年约减少3.66%。全球变暖后，中国的冰川、冻土和积雪将大幅度减少，山地冰川将继续后退萎缩。估计到2050年中国西部冰川面积将减少7.2%。¹气温的升高将加剧中纬度地带尤其是亚洲内陆地区的干旱。近年来我国西北的沙漠化现象有加重的趋势。湿润半湿润的东北地区，自上世纪九十年代以来，降水量持续偏少，松花江、黑龙江的水位多次下降到历史最低点，干旱问题已经对东北地区的农业生产产生了威胁。

2、极端气候的威胁。近年来高温、寒流、暴雨、洪涝、台风等极端天气随着气温的升高而越发频繁。极端天气气候事件发生频率的增加将会增大天气灾害的风险。由于全球气候变暖，大气环流等随之发生改变，伴随而来的是台风等极端气候事件频频发生。各地区高温、干热引发的森林火灾等事故也将不断出现。据统计，20世纪90年代全球重大气象灾害比50年代高出5倍以上。民众最直接感受到的是极端高温。据2007年IPCC评估报告表明，过去50年中，大部分陆地区域热昼、热夜、高温热浪天气更为频繁，更大范围的地区发生强度更强、持续时间更长的干旱，此外热带气旋强度也不断增大。热浪的冲击可能直接导致死亡率的上升，增加心脏病、呼吸道系统疾病的发病率。对上海的调查研究显示，夏季气温超过 34°C 时，死亡率呈现快速上升趋势²，高频率、高强度的热浪将加重极端天气引起的疾病和死亡，尤其对于老人、小孩、病人的威胁更加显著。

3、海平面上升。气温升高将导致地球两极以及青藏高原的冰川融化，并使得海水受热膨胀，造成海平面上升。近50年来，海平面平均以每年110~215毫米的速度上升。随着全球变暖趋势的加强，在未来相当长的一段时间内，海平面将继续上升，到2050年可能上升12~50cm。海平面的上升将直接影响到亚洲人口集中的超级三角洲地区，包括中国的长江、黄河及珠江三角洲，日本大阪等东部沿海、越南北部的红河三角洲，以及孟加拉的恒河—布拉马普特拉河三角洲等人口密集地带，对亚洲的生存和发展造成极为严重的后果。我国从2000年开始发布海平面公报，不断刷新的数据表明，海平面上升速度正在加快。我国沿海海平面在过去30年上升了90mm，平面

¹ 傅粹：《全球气候变暖的成因与影响》，《首都师范大学学报（自然科学版）》，2007年12月。

² 刘学恩：《全球气候变化对人群健康的潜在影响》，《国外医学卫生学分册》，1997，24（3）：159-161。

速率为 2.6mm/年，高于全球的 1.8mm/年；2008 年还创下近十年最高，预计未来 30 年将再上升 130mm；具体是南部升幅高于北部，长三角、珠三角、黄河三角洲和天津沿岸是主要的脆弱区。珠江口海平面预计到 2030 年将上升 30cm，届时珠三角地区将有 1153km² 土地被淹没，广州市区、珠海市和佛山市将受到威胁；而在无防海潮设施情况下，淹没面积可达 5545.69km²，范围扩至中山、东莞等。海平面上升除直接淹没土地外，还将加剧风暴潮等极端天气事件，加速咸潮发生和土壤盐渍化，并进而影响沿海农林渔业以及城市供水系统。

4、气候带变化和物种变化。气温升高造成目前丰饶的亚洲中低纬度地带因缺水而变得难以耕种，中高纬度地区因热量的增加而变得适宜于耕种，这种气候的变迁将造成全球范围内的气候带变化与经济结构调整，使得未来充满不确定性。一般认为，植被地带在全球变暖进程中将向北方移动。就我国而言，气温的升高将使得等温线向北推移，东北地区的暖温带和温带面积扩大，寒温带缩小甚至退出东北，同时，就降水量而言，由于蒸发量的加大，湿润区域的面积减小，半湿润和半干旱地区面积增加，将导致我国东北地区的森林面积减少，草原面积扩大。华北地区和东北辽河流域可能因气温的升高和干旱的加剧而出现草原化。青藏高原的高山草甸面积将显著缩小，南部山区因为水热条件加强而出现森林向北扩展。北方寒温带性针叶林将对全球变暖作出强烈反应，会在很大程度上北迁进入冻原地带，而其南部则让位于冷温带的落叶阔叶林。需要注意的是，植被迁移速度低于气候变暖的速度。在植被带自然水平北移和垂直上升的进程中，许多物种的散布速度赶不上气候的变化，将导致完全绝灭或局部绝灭。全球气候变暖将使得气候带和植被在全球范围内出现大规模的调整，尽管有些地区可能应水热条件改善而变得适合耕种，但大规模的调整将使得未来充满不确定性。

5、传染病的威胁。气温的上升可能对人体健康产生威胁，其中最严重的安全威胁将来自传染病。气候的变化将造成许多传染病的传播过程产生诸多影响，包括直接影响病原的成熟和媒介的繁殖、改变媒介或者宿主的栖息地。在某些传染病的传播中，气温是一个关键因素，特别是以蚊虫为媒介的疾病，如罗斯河病毒、疟疾和登革热等等。随着地球温度上升，蚊虫将转移到以前不适合其生活的地区和更高的纬度，疾病传播季节也可能延长。来自卢旺达的报告称，年平均温度升高每 1℃，该地区的疟疾发生率上升 33.7%¹。荷兰 Pim Martens 领导的研究组设计出一个疟疾传播的计算机模型，预测如果 21 世纪全球平均温度升高 3℃，媒介按蚊的分布区扩大，将导致每年新增 5000 ~ 8000 万疟疾病例。世界卫生组织估计，每年有 15.4 万人的死亡与全球变暖的副作用有关，其中主要是疟疾。到 2020 年，这个数字可能增加近一倍。此外，气候变化引起海水温度和海平面升高可能使水源性传染病和中毒性疾病（霍乱和贝类中毒）的发生率升高。全球气候变化可能改变传染病的分布，扩大传播范围，使得新人群进入传染范围。对于亚洲许多发展中国家来说，传染病发病率的升高，将使得脆弱的公共卫生体系遭受严重挑战，威胁社会稳定，造成严重的经济社会后果。

¹ Stone R. 《全球气候变暖对人类健康的危害》，《国外医学寄生虫分册》，1995，22（5）：201-202.

三、合作性环境治理模式的探索

1、加强国际区域合作，共同应对亚洲气候变化。气候变化具有全球性和跨区域性，这使得任何一个国家或地区在面对气候变化问题感到力不从心，必须加强国际、区域之间的合作。气候问题涉及到一系列国与国之间的政治、经济、技术乃至国防等多方面的利益问题，绝不仅仅是一个气象问题，本质上是发展问题。

对于全球气候变暖的应对的措施包括两大类：一是减缓性措施，二是适应性措施。减缓性措施主要关注于控制和减少二氧化碳等温室气体的排放。然而，减少二氧化碳等温室气体的排放具有典型的全球公共产品特征，一是消费上的非竞争性和非排他性，由于缺乏超越主权国家的世界政府存在，全球公共产品就会产生供给不足和搭便车的问题。减少温室气体的排放，实际上对于大多数国家而言，至少在近期都不利于经济的发展，因而从长远看，各国都承认减少碳排放具有重要意义；但是从近期看，谁都不愿意降低经济发展水平。美国在小布什政府时期之所以拒绝签署《京都议定书》，很大程度上是因为其不愿意碳排放问题束缚了国民经济的发展。大多数发展中国家正处于工业化进程中，大量使用相对廉价的化石燃料是其经济发展的动力，且缺乏足够的技术发展绿色能源，难以承担碳排放义务。CO₂ 减排作为全球性的公共品，单单依靠各国或几个国家范围内开展的减排措施并不能真正见效，更需要世界各国从保护全人类的共同利益出发，开展广泛的全球合作。为了寻求在全球范围内采取有效的措施以控制全球气候变暖，联合国于 1990 年 12 月成立了政府间谈判委员会（INC），专门探讨制定控制全球变暖的国际公约。此后，气候变暖及 CO₂ 减排问题越来越多地被国际社会所关注。1992 年 6 月《联合国气候变化框架公约》确定了稳定温室气体浓度的长期目标及人类应对气候变化的基本原则。1997 年 12 月制定的《京都议定书》规定了定量的减排义务，引入三大基于市场的减排机制。2007 年 12 月的巴厘会议上制定了“巴厘路线图”，规定在 2009 年达成新的减排协议，强调坚持公约和议定书的原则等。2009 年 12 月，《联合国气候变化框架公约》缔约方第 15 次会议在丹麦首都哥本哈根召开，192 个国家共同出席商讨《京都议定书》一期承诺到期后的后续方案。但是，减缓气候变暖是一个现实决策问题，涉及全球公共资源配置的公平与效率问题，任何一个决策都可能会对经济发展产生深远的影响。因此，各国政府在做任何有关减缓气候变暖的现实决策中都面临着如何协调短期经济发展和环境保护的两难困境，基于不损害自身发展的出发点，都希望以“搭便车”的形式将减排负担转嫁到其他国家，这就使得国际气候谈判一波三折、步履维艰。

社会学家吉登斯认为，国际社会在面对全球气候变暖这一潜在危机时，存在着一种进退两难的困境：“全球变暖带来的风险尽管看起来很可怕，但它们在日复一日的生活中不是有形的、直接的、可见的，因此很多人会袖手旁观，不会对它们有任何实际的举动。然而，坐等它们变得有形，变得严重，那时再去临时抱佛脚，定然太迟了。”

由于减排的公共产品特征，各国基于各自的利益出发，在减排的国际合作上必然进行博弈。

这就需要各国加强合作,增进信任,达成良性均衡,共同应对气候变化。发达国家实现工业化时间早,排放温室气体多,理应在应对气候变暖行动中承担更多的责任,投入更多的资金用于研发节能环保技术,并对发展中国家进行适当的技术转让。中国作为发展中国家,发展经济是当前最主要的任务,且正处于现代化进程中,难以和发达国家一样同等承担减排义务。但是也必须认识到,我国的碳排放总量已经超过了美国,成为世界上碳排放最大的国家。过度使用化石燃料业已对我国环境造成严重的破坏。因此,大力发展清洁能源技术、减少碳排放、转变经济发展结构是符合我国经济发展的长期利益的。

亚洲各国应积极寻求区域合作,加强国家与地区之间的交流,在应对全球气候变暖问题上增进互信,加强合作,共同应对亚洲气候变迁,增强亚洲在世界上的发言权。

2、探索包括中央政府、地方政府、企业、民众、社会组织等不同利益群体之间的合作性环境治理模式。目前,中国在环境治理问题上主要采取的手段是行政管制,政府是环境保护的主要推动力量,探索政府与企业、民众、社会组织之间的有效互动与合作,有助于节能减排的实现和环境的政策的落实。地方政府在气候变化应对中具有非常重要的地位,地方政府在制定、实施气候变化立法与政策职能问题上,应发挥更大的主动性和创造性,切实引导当地经济转型,发展第三产业。中央政府可以国内省市中也提倡“共同但有区别的责任”的基本原则,鼓励先进的地方在气候变化问题上走得更快更远,兼为地方之间的技术和资金转移打下基础。目前国内大多数企业仍缺乏控制温室气体排放的动机,减少污染对于大多数企业来说,仍然是一件投入高而回报低的事情。国家应该注重在资金和技术上引导和帮助各类企业将气候变化的因素纳入企业的中长期规划,加强风险管理。同时,通过鼓励措施引导企业积极承担在应对气候变化问题上的社会责任。这里的企业不仅包括国有企业,还应该将广大的中小私营企业纳入进来。企业按照政府要求对自身承担气候变化影响的能力进行评估,并加强风险管理,以实现可持续发展。民众和社会组织等社会力量处于成长阶段,在应对气候变化和环境保护过程中发挥日益重要的作用,改变个人生活方式,提倡低碳生活。应对气候变化,应加强政府、企业、民众、社会组织之间的合作与沟通,发挥不同主体的功能。中国必须把地方上的自发力量释放出来,才能最终解决气候变化问题。

3、开展多学科的合作研究。气候变化涉及到环境、人口、能源、经济、政治等多个学科,它们之间是彼此紧密相关,互为因果。森严的学科壁垒使得任何一个学科在处理诱因多元而复杂的环境问题时都力所不逮。这一状况严重地影响到我们正确认识人类社会与生态环境演变的相互关系,使我们在影响日益广泛而深入的全球变化讨论中难以获得真正的话语权,无法有效保障发展中国家的基本权益。任何单一学科都无法有效解决这些问题,而需要多学科,特别是自然科学与人文社会科学间的合作研究、协同攻关。

从经济学的角度看,全球气候变暖本质上是发展问题。借助经济学的研究视角,探讨矿物燃料对环境的破坏应付出的代价,并研究如何通过碳税等方式,促进经济转型和节能技术的传播。全球气候变暖问题也是政治问题,各国应对气候变化的谈判是基于各自国家利益上的政治角力,政治

学的研究方法有助于我国在气候问题上的国际谈判，增加国际话语权。人口因素在减少碳排放问题上具有重要影响，人口规模、人口结构、消费方式和生活方式等对减少碳排放有着深刻的影响，在气候变迁研究问题上，人口学的参与是十分必要的。中国古代具有丰富的历史文献资料，其中关于气象资料的记载是世界上独一无二的，将其整理成数据库，可以建立历史时期气候变迁序列，是研究历史气候的重要代用资料。我国丰富的家谱资料也为建立上千年的口变化序列提供了极为宝贵的资料，可用于检测气候变迁对人类发展的影响。大众传媒对于引导舆论发挥着重要的作用，发展低碳经济、推广低碳生活方式，树立大众的环境保护观念等都离不开媒体的参与。此外，气候变暖对生态环境以及传染病的影响，则需要环境科学和公共卫生等领域的专家学者参与。由于全球气候变暖问题自身十分复杂，且对人类文明产生的影响极为广泛和深刻，因而需要从自然科学、社会科学到人文学科多学科的合作，才能有效应对气候变化问题。

四、对上海发展的政策建议

实际上，尽管科学家们在人类活动是否是造成全球气候变暖的主要因素的问题上存在分歧，但是他们至少在限制碳排放问题上是可以取得共识的。任何人都无法否认工业革命以来人类社会大量排放温室气体并由此给环境造成严重破坏的事实，因而不论是从环境保护的角度还是从缓解气候变暖的角度来说，减少碳排放、发展清洁能源、转变生产方式都势在必行。作为中国经济发展的引擎和现代化的龙头，上海在应对气候变暖、减少碳排放和保护环境方面理应走在全国前列。本文对上海发展的具体建议如下：

1、推动多学科合作发展，从长时段探索气候变化的自然规律以及人类活动与环境的互动。整合上海高校学科优势，建立“上海全球气候变化研究中心”，推动以气象学、环境科学、经济学、政治学、人口学、历史学、公共卫生等多学科合作的全球气候问题研究，取得独立的研究成果，为中国和上海争取气候变暖问题的国际话语权。

2、发挥企业、个人、社会团体在应对气候变化与环境问题的积极性。从金融、经济、社会等多方面营造有利于企业自觉参与降低碳排放的机制，降低企业参与环保的成本。对于采用环保节能技术的企业，在税收、信贷等方面给与支持和鼓励，重度污染企业应加强限制和淘汰。降低节能减排产品的税收，以便于环保产品的推广。引导民众的低碳生活方式，加大宣传力度。支持社会组织和民间团体的公益环保行动。

3、重点加强大气污染治理。上海市政府已经推行了包括燃煤炉灶清洁能源改造、运输扬尘控制、秸秆焚烧管理、机动车污染控制等一系列的遏制城市空气污染的措施，并取得了一定的成效。然而，上海面临的大气污染问题依然严峻，废弃排放总量还在不断上升。对于市区而言，主要的空气污染来自汽车尾气排放。私家车的普及在造成城市交通拥堵的同时，也带来严重的空气污染。

特别针对空气污染问题，具体建议包括：

第一，增设主要商业中心与主要居民区间的快速公交系统 (BRT, Bus Rapid Transit)。加强地铁、公交车等公共交通系统建设，在人民广场、陆家嘴、徐家汇、中山公园、五角场等主要商业中心与主要居民区间，开辟专用公交车道，行驶快速的大型公交车，并增加快速地铁，两者均仅停靠主要站点，如平均 5 公里设置一个站，将几个商业中心与主要居民区连接起来，大幅度提高人流通行速度，以此可以有效减少对小汽车依赖，公交车也应全部采用电力或天然气发动机。在各大站之间设置免费自行车点与普通公交车共同提供短途驳运。

第二，与第一点配套，建议效仿老伦敦城的做法，实行“非公交车”市中心有偿进入制度。规定“非公交车”进入内环以内的市中心地区按小时累进收费，以降低市中心车流量，有效改善市区空气质量，降低 PM2.5 值。

第三，提高燃油标准，改善燃油品质。目前上海实行的燃油标准过低，甚至还低于北京的标准，与上海的国际化大都市的定位极不匹配。上海 97 号汽油仅相当德国标准的 95 号汽油，低劣的燃油品质造成的加剧尾气污染，提高燃油标准势在必行，且势在必行。

4、加强对固体废弃物污染治理。加强对垃圾的综合治理，传统的填埋式处理是一种短视行为，且造成的潜在危害极大。在上海郊区掩埋垃圾的方式尽管方便且成本低，但势必对地下水、土壤、植被等将造成严重威胁。未来上海城市规模将不断扩大，城市向周边地区扩展，现在作为垃圾掩埋场的郊区，将来很可能变成城区，变成居民点，届时难道要上海人民生活在垃圾堆上吗？此外，应尽快实行垃圾分类处理。垃圾分类处理可降低垃圾回收利用的成本，减少对环境的污染。目前仍需要加强垃圾分类处理的宣传，增强民众垃圾分类意识，同时完善相应的垃圾分类设施。

上海走在我国工业化的最前沿，其正在面临伦敦等西方城市在工业化进程中出现的严重的环境恶化问题，并且正向危机的深处走去。不论气候变暖的原因是人为的温室气体排放还是大自然自身变化规律，我们居住的环境正在恶化是有目共睹的，加强环境问题的综合治理，提高企业的环境责任感，增强民众的环保意识，促进政府、企业、民众、社会团体之间的有效合作，共同营造碧水蓝天的美丽上海！

After the Asian Miracle: Problems, Challenges and Choices

1. The Main Problems Plaguing Asia after the Economic Miracle

After World War II, the high and sustained economic growth in Asia, contributed mainly by 10 economies, namely, Japan, China, the Four Little Dragons (Republic of Korea, Hong Kong of China, Taiwan of China and Singapore), and the Four Little Tigers (Thailand, Malaysia, Indonesia and Philippines), have received worldwide attention. As is pointed out in a research report of World Bank in 1993, if growth were randomly distributed, there is roughly one chance in ten thousand that success would have been so regionally concentrated.¹

However, Asian economic growth did not manifested as a simultaneous rapid growth of all those economies, rather, it showed up as an en echelon sequential growth headed by Japan. Thanks to the adjustments and recovery during 1945~1951, Japan's economy climbed up once again to the pre-war level and then entered into a period of rapid growth, which lasted for 20 years. According to the statistics of World Bank, Japan's GDP between 1950 and 1960 arrived at an average growth rate of 8.6%, and that of the period between 1960 and 1970 was well above 9% (Table 1). However, Japan's economic growth began to decline after the 1970s, and then fell into a continuous recession which led to two "lost decade".

Luckily, the Four Asian Tigers caught the "relay baton" of rapid economic growth immediately. Actually, as is shown in Table 1, the Four Little Dragons-- Republic of Korea, Hong Kong, Taiwan of China and Singapore have already shown signs of gradual acceleration of economic growth in 1960s, and this momentum sustained until the early 1990s. After 30 years' rapid development, those economies became emerging developed economies following Japan. The Asian economic miracle was also attributable to another group of economies, which are called the Four Little Tigers including Thailand, Malaysia, Indonesia and Philippines. Although the overall growth of these economies was not as good as that of the Four Asian Little Dragons between 1960 and 1990, their triumphant advancement after 1990s paralleled the latter. However, after the continuous strikes of 1997 Asian financial crisis and 2008 global financial crisis, the economic growth of Asian Four Little Dragons and Four Little Tigers all declined in varying degrees, the miracle of high-speed economic growth seems to be fading out. In the late 1970s, China joined the ranks of Asian rapid economic growth and managed to keep the economic miracle alive to date despite radical changes occurring in former Soviet Union and East Europe and two aforementioned financial crises. Now, an overall view of Asian economic growth will tell that China outshines others.

¹ World Bank, 1993, *The East Asian Miracle: Economic Growth and Public Policy*, Oxford University Press, p.2

As to whether there is a so-called “Asian Miracle”, people have been conducting heated discussions about that. If there is a miracle, then which factors contributed to that? A lot of research has already been made to discuss this issue, among them the East Asian Miracle, which was published by World Bank in 1993 is one of the most systematic and authoritative documents. Relevant research mainly summarizes the reasons for Asian Economic Miracle into eight aspects, namely, stable macroeconomic environment, high savings and investment rates, high quality human resource (with a good education background and high literacy rate), meritocratic bureaucracy, lower level of income inequality (by reducing poverty), export promotion, successful industrialization, foreign direct investment (FDI) and the transfer of relevant technology know-how.

Table 1 Growth Rates of Major East and South-East Asian Economies: 1961~2011

	1961-1965	1966-1970	1971-1975	1976-1980	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005	2006-2007	2008	2009	2010	2011	
Japan	9.38	9.21	4.60	4.39	4.25	5.01	1.42	0.85	1.20	0.35	2.19	-1.04	-5.53	4.44	-0.70
China	1.87	7.44	5.94	6.62	10.78	7.92	12.28	8.62	9.76	11.22	14.20	9.60	9.20	10.40	9.30
Republic of Korea	5.94	10.59	7.57	7.03	7.83	9.65	7.82	4.55	4.50	3.84	5.11	2.30	0.32	6.32	3.63
Hong Kong, China	13.88	6.71	7.70	11.70	5.76	7.81	5.23	2.75	4.18	4.00	6.39	2.31	-2.66	6.97	5.16
Taiwan, China	9.32	9.48	8.94	10.63	6.43	8.88	7.23	5.25	3.63	4.21	5.98	0.73	-1.81	10.72	4.03
Singapore	7.39	12.84	9.55	8.60	6.93	8.69	8.57	5.84	4.83	6.62	8.86	1.70	-0.98	14.76	4.89
Thailand	7.19	9.16	5.77	8.00	5.45	10.34	8.62	0.64	5.11	3.62	5.04	2.48	-2.33	7.81	0.05
Malaysia	6.88	6.11	7.19	8.55	5.15	6.91	9.47	4.99	4.76	4.54	6.48	4.81	-1.64	7.19	5.14
Indonesia	2.03	6.33	7.82	7.93	5.67	7.14	7.87	0.99	4.73	5.74	6.35	6.01	4.63	6.20	6.46
Philippine	5.23	4.62	5.78	6.07	-1.14	4.74	2.19	3.59	4.60	4.96	6.62	4.15	1.15	7.63	3.72
Brunei	-	-	0.36	10.68	-3.25	0.08	3.17	1.35	2.08	0.69	0.19	-1.94	-1.77	2.60	0.00
Cambodia	-	-	-	-	-	-	7.77	7.34	9.36	6.75	10.21	6.69	0.09	5.96	6.93
Laos	-	-	-	-	5.07	4.47	6.19	6.17	6.24	8.01	7.60	7.82	7.50	8.53	8.04
Burma	4.54	1.91	3.02	6.34	4.83	-1.98	5.90	8.53	12.71	-	-	-	-	-	-
Vietnam	-	-	-	-	3.81	4.79	8.21	6.96	7.51	7.02	8.46	6.31	5.32	6.78	5.89
World	5.54	5.10	3.79	3.92	2.83	3.68	2.32	3.39	2.77	2.27	3.94	1.33	-2.25	4.34	2.73

Source: <http://data.un.org/Explorer.aspx>

Unfortunately, the 1997 Asian financial crisis and 2008 global financial crisis cast a thick layer of shadow over the Asian economy. Will this be the end of the Asian growth miracle? Are Asian economies, including China, standing at the threshold of the “lost decade” just like Japan? To answer these questions, we should first reflect on what exactly are the problems faced by Asia.

First, we should rethink the essence of the division of labor in Asia. The global development trend reveals that, on the one hand, world market, trade and investment are becoming increasingly integrated; on the other hand, industrial chain, and production activity and process at the micro-level have become

more and more disintegrated. The enterprises, especially the multinational corporations (MNCs) are becoming progressively more powerful. By means of foreign direct investment (FDI) or non-equity modes (NEMs) like outsourcing, these enterprises placed the various production stages over different countries and regions. As a result, the production of a typical product is often accomplished under the cooperation among many different firms in many different countries and regions, and it increasingly involves bits of value being added in many different locations, or what is called “trade in tasks” or “trade in value-added”. In general, the United States is the leader in this pattern of global division of labor. In Asia, the “flying geese” mode is the basic character of its labor division, which is headed by Japan, and then followed by Four Asian Dragons, China, Four Little Tigers and other ASEAN economies. In this mode, Japan develops an industry first; when the technology is mature and the costs of production factors (especially labor costs) increase, the advantage of local production will decline, and then Japan will transfer this industry and its related technologies to Four Asian Tigers and upgrade its own industrial structure into a new level. Similarly, Four Asian Tigers will transfer this industry further to less developed countries when it’s mature and have their industrial structures upgraded accordingly. By analogy, with industries continuing to transfer and being undertook, economies show a sequential and progressive development momentum. However, it should be emphasized that Asian flying geese mode in division of labor led by Japan is only part of the global division pattern led by the United States. The dynamic evolution of the former will not be sustainable without the latter. That’s because, in essence, Asian flying geese division of labor pattern led by Japan is driven by Japan’s manufacturing, while the global division pattern led by the United States is driven by America’s innovation. Japan is essential to Asia, and Asia won’t do without the United States. In this sense, Asian is an open regional economy, thus it cannot separate itself from rest of the world and make division of labor within Asian countries. Rather, Asia should have a global perspective and actively integrate into the global labor division system.

Second, there are some constraints plaguing the current and future economic growth of Asia which are in urgent need of being overcome. To sum up, there are four main “asymmetries”.

The first is the asymmetry between supply and demand. Asian economies, especially Japan and China, have long-term shortage in domestic demand which leads to a serious imbalance between overall domestic supply and domestic demand. They could only resort to net export, that is, foreign demand, to balance supply and demand. According to Table 2, over the past decade, more and more economies began to have surplus in current accounts. To 2011, current accounts of all of the 10 economies are in surplus, with varying ratio against their GDP ranging from 0.24% (Indonesia) to 19.7% (Singapore). Surplus in current account (trade surplus mainly) also reflects that the domestic savings are larger than domestic investment. As is shown in Table 3, in recent years, all economies except Japan and Philippine enjoy a savings rate of 30% or above, and that of China and Singapore are as high as 50%. But Japan’s savings rate once reached 40% during its rapid economic development. According to the golden rule of saving rate of the standard neoclassical growth model, savings rate which maximizes the steady state consumption should be equal to the share of capital in GDP. Seeing this as benchmark, we are aware that most of those economies are having high savings rates and low consumption rates.

Table 2 The Shares of Current Account Balance in GDP in Major Economies (%)

%GDP	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Japan	1.4	2.5	2.1	2.8	3.2	3.7	3.6	3.9	4.8	3.2	2.9	3.7	2.0
China	2.9	1.7	1.3	2.4	2.7	3.5	5.8	8.3	10.	9.1	5.1	5.3	2.8
Republic of Korea	-0.51	2.7	1.6	1.3	2.4	4.4	2.2	1.4	2.0	0.3	3.9	2.9	2.3
Hong Kong, China	6.2	4.1	5.8	7.5	10.	9.4	11.	12.	12.	13.	8.5	5.5	4.1
Taiwan, China	6.6	2.7	6.2	8.5	9.4	5.8	4.8	6.9	8.9	6.8	11.	9.2	8.9
Singapore	8.0	10.	12.	12.	22.	16.	21.	24.	27.	14.	19.	22.	19.
Thailand	-8.53	7.5	4.4	3.6	3.3	1.7	-4.3	1.1	6.3	0.8	8.3	4.1	3.4
Malaysia	-1.90	9.0	7.8	7.1	12.	12.	14.	16.	15.	17.	16.	11.	11.
Indonesia	-2.37	4.8	4.2	3.9	3.4	0.6	0.1	2.9	2.4	0.0	1.9	0.7	0.2
Philippine	-5.49	-2.7	-2.2	-0.3	0.3	1.7	1.9	4.3	4.7	2.0	5.5	4.4	3.1

Source: <http://data.un.org/Explorer.aspx>**Table 3 The Shares of Domestic Savings in GDP in Major Economies (%)**

	1960	1970	1980	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Japan	40.	31.	33.	26.	24.	23.	24.	24.	23.	23.	24.	23.	20.	20.		
China	05	15	40	55	94	80	05	46	87	94	57	17	03	97		
Republic of Korea	28.	34.	39.	37.	38.	40.	43.	45.	47.	50.	50.	51.	52.	52.	52.	52.
Hong Kong, China	93	83	13	53	39	44	40	81	63	67	54	76	65	13	52	
Taiwan, China	1.8	15.	23.	36.	33.	31.	30.	32.	34.	32.	31.	30.	30.	29.	31.	
Singapore	7	16	91	44	42	42	67	16	09	39	01	94	03	98	93	
Thailand	23.	28.	34.	35.	31.	29.	31.	31.	30.	33.	33.	31.	30.	28.	29.	
Malaysia	74	12	37	67	90	82	13	16	70	00	13	76	70	77	32	
Indonesia	17.	25.	31.	31.	28.	26.	27.	29.	29.	28.	30.	31.	29.	28.	32.	30.
Philippine	52	36	75	00	36	29	66	39	55	63	30	16	07	54	54	46
Thailand	8.8	19.	38.	45.	46.	42.	41.	44.	47.	49.	50.	53.	51.	51.	50.	49.
Malaysia	5	34	03	12	03	34	23	00	41	38	57	01	25	34	55	11
Indonesia	14.	21.	22.	33.	31.	30.	30.	31.	31.	30.	31.	34.	31.	31.	33.	33.
Philippine	08	17	89	84	47	59	49	75	65	32	79	82	69	79	30	07
Thailand	25.	24.	29.	34.	46.	41.	42.	42.	43.	42.	43.	42.	42.	35.	39.	
Malaysia	47	29	81	48	08	84	03	46	42	82	09	15	48	98	23	
Indonesia	12.	14.	38.	32.	32.	30.	27.	32.	28.	29.	30.	28.	28.	33.	34.	39.
Philippine	37	31	04	26	76	81	70	94	73	23	81	96	87	79	05	49
Thailand	18.	21.	24.	18.	16.	15.	15.	15.	16.	15.	16.	17.	16.	15.	18.	11.
Malaysia	54	88	19	38	38	29	53	45	11	95	22	24	83	47	73	92

Source: <http://data.un.org/Explorer.aspx>

Table 4 The Shares of Total Capital Formation in GDP in Major Economies (%)

	1970	1980	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Japan	39.71	32.33	32.72	25.44	24.75	23.07	22.85	23.04	23.57	23.79	23.69	23.55	20.20	20.17
China	29.02	34.83	34.87	35.28	36.48	37.82	40.96	43.02	41.61	41.83	41.73	43.93	47.67	49.33
Republic of Korea	26.06	32.89	38.09	30.56	29.16	29.20	29.89	29.93	29.69	29.62	29.43	31.21	26.28	29.15
Hong Kong, China	20.41	34.85	27.03	27.46	25.32	22.84	21.92	21.84	20.57	21.73	20.93	20.44	21.31	23.71
Taiwan, China	25.35	33.29	24.37	25.68	19.84	19.34	19.91	23.70	22.72	22.68	22.12	22.40	17.66	22.63
Singapore	38.20	44.98	35.05	33.18	26.77	23.77	16.12	21.75	19.97	21.03	21.07	30.20	26.36	23.83
Thailand	28.23	29.14	41.35	22.84	24.10	23.80	24.97	26.79	31.44	28.30	26.43	29.12	21.24	26.01
Malaysia	18.74	29.94	31.84	26.87	24.40	24.78	22.76	23.05	19.99	20.45	21.56	19.32	14.44	21.42
Indonesia	12.79	19.00	27.91	22.28	22.59	21.43	25.60	24.06	25.08	25.40	24.92	27.82	31.00	32.49
Philippine	24.54	33.44	27.77	18.37	22.14	24.47	22.98	21.61	21.55	18.01	17.34	19.29	16.59	20.54

Source: <http://data.un.org/Explorer.aspx>

The second is the asymmetry between cost rigidity (exchange rate appreciation and wage rigidity) and innovation insufficiency. Endogenous innovation insufficiency is a common problem across Asia, which has been proved by lots of studies. All these studies have two consensuses: the first is that the Total Factor Productivity (TFP) makes little contribution to the growth of the emerging economies. No evidence showed that these economies' TFP growth rate is higher than that of the world average, especially that of the main industrialized economies. The second is that these economies have narrowed the gap between their technology and that of developed countries to some extent through purchasing practical technology and attracting foreign investment. However, the technology spillover effect created in this way is limited. Therefore, the 2008 Nobel laureate Paul Krugman pointed out that Asian economic growth has so far been mainly a matter of perspiration rather than inspiration--of working harder, not smarter.¹

The asymmetry between the endogenous innovation insufficiency and cost rigidity are mainly reflected in the development process of the two large economies, Japan and China, in this area. In the post-war period through the 1970s, Japan's economy recovered quickly and increased at a high speed. This performance is highly resulted from the export-oriented economic policy, i.e. the trade liberalization under a stable exchange rate regime. However, in the late 1980s, under the pressure from the United States, the Japanese government made a mistake and chose to impel the yen to appreciation, instead of taking a further step in opening up the domestic market and promoting the liberalization of trade. Thus, the competitive edge of Japanese enterprises' export has been crippled. On the other hand, the special employment system in Japan---the trinity of lifetime employment, the senior system and the enterprise unions ----promoted the stable development of enterprises as well as

¹ Krugman, Paul, "What ever Happened to the Asian Miracle?" Fortune, 8/18/1997, Vol. 136, Issue 4, pp.26-28.

the whole economy while resulted in the lack of flexibility in the labor market. But if the innovation had made compensation to the problem caused by the appreciation of yen and the wage rigidity, the problem would not be so serious. In fact, the opposite is true, and the consequence is that the economic development of Japan slowed down and stagnated in the late 1980s.

Contrasted to Japan's history, China seems to follow the same way. Undoubtedly, the China's speedy economic growth began in the late 1970s depended largely on the policy of reform and opening up, especially on the export-oriented economic policy, i.e. firstly depreciating currency and then (after 1994) liberalizing trade under a stable exchange rate system. However, the appreciation trend of RMB, which came into force on July 21st, 2005, as well as the new labor laws, which took effect in recent years, are leading China to the wrong way that was taken by Japan before. But, China might make a much worse mistake than Japan, for at that time the domestic enterprises in Japan had taken a good measure in "going out" strategy and had realized internationalization under the impact of the imbalance between cost rigidity (exchange rate appreciation and wage rigidity) and the sufficient innovation. Besides, the multinational corporations in Japan are influential nowadays. However, the impact of the same imbalance doesn't impel the Chinese enterprises to "go out". On one hand, we see many private enterprises going bankrupt due to this impact. On the other hand, we see that the state-owned enterprises are ready to have a try, but meeting suspicions and limitations of the host countries on the tough road towards internationalization.

The third is the asymmetry between productivity growth and wage increase. According to the economic growth accounting model, when the capital-labor ratio is changeable, the difference between the growth rate of labor productivity and the one of total factor productivity is quite big. For instance, Young found in the research in 1992 that the growth rate of total factor productivity in the East Asian economies was close to zero. This difference stems from the comparatively fast capital accumulation.¹ When the growth rate of labor productivity is higher than that of wages, the economy will keep a continuous increase, even if the growth rate of TFP is very low.

But as for of the current Asia, most economies, including China, in this area, are the typical "dual economy" with a surplus labor. In this kind of economy, the labor market cannot make a clearing for the serious mismatching between the employment structure and the industry structure on one hand. On the other hand, the wage for the labor embodies a rigidity of going up under the limitation of legal and labor standard rules as well as the increase of living cost. The increase of wage cost improves the capital-labor ratio, reduces the labor participation rate and makes the labor market clearing harder. If the growth rate of wages is higher than that of labor productivity, the economy will come to stagnation due to lack of innovation. As a result, we can see that the two co-existing phenomena: the co-existing of unemployment or underemployment and wage increase, and the co-existing of the stagnation of labor productivity and wage increase. These two phenomena are actually the inevitable result of distorted and ineffective market mechanism caused by the government interference.

¹ Young, Alwyn, "A Tale of Two Cities: Factor Accumulation and Technical Change in Hong Kong and Singapore", NBER Macroeconomics Annual 1992, Volume 7.

The last is the asymmetry between the industry policy and market orientation. There is a lot of economic research literature on the nexus between industry policy and market mechanism. Different schools of economists hold different opinions. In terms of Asia, almost all of the economies in this area established their own industry policies in the past decades. (Hong Kong is an exception, but it benefits from Chinese Mainland's industry policy.) Industry policy has become an integral part of these economies. These economies' governments carried out various industrial policies through different approaches, including giving special assistance through state-owned enterprises and intervening factor (land, capital) markets to alter the input cost structures of the target industries. Although these measures have some positive influences, there is no need to put it in a detailed way. What we should emphasize here is that the government interference reflected by the industry policy will bring out a lot of serious problems while overcoming the market failure or pretesting to overcome it. The problems are: on one side, more industry policies mean more rent-seeking space, which gives room for corruption and expels the government officials and other stakeholders to establish and implement more industry policies by all means. On the other side, more industry policies mean more distorted resources distribution. This offers a pretext to the government to establish new industry policies, i.e. dealing with the market failure brought out by previous policy. The point of this vicious circle mainly exists in the undemocratic countries and regions. In this kind of economies, a severely bad industry policy will lead to economic breakdown, or at least result in industry bubble. For example, in recent years, the real estate bubble in some Asian economies is just the consequence of a large amount of fund flowing into this industry, which is also caused by the wrong industry policy.

The 2001 World Bank research report pointed out, the ill-conceived industry policy has at least some of the following characteristics: (1) it is not based on a sound analysis of the market failures it was supposed to overcome; (2) it does not address specific market failures or maximize the positive externalities from developing certain strategic industries; (3) it ignores market signals in trying to achieve efficiency; (4) it underestimates the information needed for effective interventions; (5) it overlooks the limited capacities, competencies, and capabilities of the government; (6) it overestimates the human and other resources available to build efficient industries; (7) it disregards efficiency, scale, and other considerations.¹ The "fatal conceit" embodied in the industry policy does not point to whether the industry policy itself is congenial or not, but implies that the government can never achieve its alleged objective through industry policy without any cost.

In a word, Asian economic growth miracle in the past was brought by extensive margin rather than intensive margin, which was largely characterized by the export-oriented economic development under a stable exchange rate, the comparative advantage in low labor cost and the orderly industrial division and transfer among Asian economies. So far, the reason for the above four problems of "asymmetry" is, in fact, due to the termination of extensive margin. But, what leads to such an early termination of the extensive margin after all? Obviously, the answer does not lie in the market but in the government policies. As Krugman once said: "The biggest lesson from Asia's [recent] troubles is not

¹ Stiglitz, Joseph and Yusuf, Shahid, Rethinking the East Asian Miracle, The World Bank, 1818 H Street, N.W., Washington, D.C. 20433, USA, 2001, pp.489-490.

about economics, it is about government. When Asian economies delivered nothing but good news, it was possible to convince yourself that the alleged planners of these knew what they were doing. Now the truth is revealed, they do not have a clue.”¹

II. The restriction to the achievement of Asian’s success after the economic growth miracle

1. Exchange rate and resources: the hard restriction to the achieving of economic success

(1) Maintaining the competitive exchange rate

It is proved by the development of China and other major East Asian economies during the last 50 years that the underestimated exchange rate has a highly positive effect on the national economic growth. Asian countries with a large population and poor natural resources are all full of surplus labor in the countries and are facing the transference to dual economy in the early stage of economic development. The tradable goods production department, which is mainly made up of manufacturing industry, is characterized by economies of scale and a highly flexible labor employment. The underestimated practical exchange rate can expel the labor factors to transfer to export-oriented manufacturing industry through improving the relative price of trade goods, thus providing an effective encouragement for the tens of millions of farmers to become workers of modern industries in a comparatively short period. In this process, the macro price distortion will fundamentally improve the microscopic efficiency of the labor factor market which is extremely insufficient at first. Meanwhile, compared to the non-tradable goods department, the tradable goods department is easier to integrate with the world because it is faced to the developed market. Besides, the learning by doing effect brought by the following attraction of foreign business and investment and some policies of compulsive technology transference speed up the development of manufacturing industries in developing countries. “To make what the developed countries has made” is the common experience for the growing up of the modern industries among East Asian countries. And the underestimated exchange rate is the key logical node in this process. The underestimated exchange rate in the East Asian economic development opens up markets to their products by price competition, pushing itself into the stage of trade surplus in the starting period. Therefore, a majority of the economies overcome the shortage of foreign exchange, providing conditions for the capital which is necessary in developing manufacturing industry by way of mass imports and creating opportunities for a long time and quick increase in the future. Underestimated practical exchange rate leads income to flow into enterprises by lowering the practical wages. However, the accumulation ratio of enterprises often tends to be higher than the one of residents. Consequently, the saving ratio of the whole society improves sharply. Moreover, the underestimated exchange rate has another derived effect. The comparative growth of tradable goods price brought by this effect will suppress consumption and increase savings, objectively satisfying the need of expanded production. Due to a lot of market distortions in the economic operation during its development, many factors will not flow into the most dynamic departments of

¹ Krugman, Paul, “What ever Happened to the Asian Miracle?” *Fortune*, 8/18/1997, Vol. 136, Issue 4, pp.26–28.

trade goods in natural conditions. The target industry policies are always proved to be right. But some international organizations including WTO make strict limitations to the more targeted measures such as export subsidiary and other tariff or non-tariff wall. So the underestimated exchange rate as a substitution among all the industry policies has become the second choice for many governments. A great amount of practical evidences have proved that this policy play a positive role in the nation's economic growth. After the reform and opening up, China is an obvious example.

According to Hume's monetary price mechanism, the monetary increments generated by the sustained undervalued exchange rate will drive the commodity prices higher and the actual exchange rate revalued. Hence, such manipulation of wholly focusing on the development of the commercial industry while intentionally lowering down the exchange rate is invalid in the long run. But the central banks of China and other East Asian economies are capable of averting some of the inflation pressure by certain direct and indirect sterilization methods and keep down the actual exchange rate at a relatively low level. As the large amounts of capital inflows which are brought about by the long-term undervalued exchange rate would render the central banks with a much difficult situation to counter the inflation with the sterilization methods, thus in the predictable future, it is definitely necessary for those economically disadvantaged countries in the East Asia to carefully arrange the sequences for their capital markets' opening up to the outside and maintain an effective regulation of the capital, especially of the long-run capital inflows. Core inflation, especially the skyrocketing of people's wages will weaken its international competitiveness and that of the actual exchange rate, then while attempting to bridge the gaps of people's income, the governments should avoid falling into the trap of the one-sided pursuit, that is, to narrow the income gap by setting the increasing pace of workers' income way higher than the increasing pace of their labor productivity. As the prices of the land and the real estate have an instant impact on the other capital factors, the government should draw a lesson from the so-called "Dutch Disease" and reduce the proportion of the land finance and straitjacket the overheated development of the non-tradable goods. Research also shows that, even a short-term overestimation of the actual exchange rate will pose an enduring negative influence on the domestic manufacturing industry. And because of the rise of the emerging market, instead of serving as a way of macroeconomic control, an overly free floating exchange rate will microscopically make the country cost more and prolongate its span of the fluctuation. Evidently, it is common for us to maintain a steady nominal exchange rate for a rather long time.

The last five decades after the Second World War witnessed the economic take-off of Japan and the economies of the Four Asian Little Dragons and 4-Tigers. In the times of the cold war, America lent great economic assistance to Japan and other East Asian economies of the capitalist camp, though during this time, the currencies of these economies are often underestimated, this kind of underestimation sent little shockwave to the outside world, both due to the currencies themselves and the special historic background. However, in recent two decades, with the economic boom of China, the economic environment of East Asia is much more susceptible to the external world, which means that, though China has a great demand of the international market and has provided a huge number of cheap goods to the international market, its immense low-end manufacturing capability with its rapid expansion to the external market characterized by China's primary stage of economic development has pressured other producers of cheap goods a lot and made the market more competitive. What's more,

the immensely negative externalities of the long-term underestimation of the exchange rate are making the sustaining development of the export-oriented manufacturing industry even harder. In recent years, the west, especially America pressures China to appreciate its RMB so frequently that frictions concerning the exchange rate of the two countries gradually have become normalized. But for China and many other countries in East Asia, to have a proper underestimation of the actual exchange rate is doubtlessly their clear-cut and steady policies and aims.

Our past experience has told us that, the proper underestimation of the exchange rate is one of the most effective instrument to boost the economic development, so China and other countries should stand firm on their positions and steadily strive for their respective indispensable space of development, that is, to hold fast to the policy of keeping an undervalued exchange rate in the recent one or two decades even at some costs. Globally speaking, in the long run, the economic take-off of the East Asian countries directly defines the future of the people in the East Asia, and to leave enough room for their development is the common judgment for those who at least have a conscience. Additionally, to become a prosperous, developed country by properly underestimating the actual exchange rate is the common expectation shared by billions of people in the East Asia. And with the development of economy, the positive externalities of the underestimation in the exchange rate would become watered down, then it is time to loosen our grip on the policy of the underestimation in the exchange rate or even to establish free trade areas with other developed countries in order to lower down the costs of the international trade and make preparations for the implementation of the new exchange rate policy with relatively higher costs.

(2) Overcome the disadvantages from resources and environment.

Those economically disadvantaged East Asian countries, among which China is a representative, are now in their prime time of economic boom, and almost all of them are characterized by the high concentration of the heavy industries, and the overuses of energies and all kinds of minerals. As this kind of situation will not be altered in the foreseeable one to two decades, the issues of energies and environment will naturally become more and more serious. Take China as an example, on the whole, it will be continually confronted with the problems of the increasing demand of the total amount of resources and energies, the shortages of liquid fuels, base metal and key agricultural products, the ever worse living environment, the excessive emission of greenhouse gas, and the inefficiency of the resources utilization. For many European countries and America, their energy consumption has stopped increasing, and it is also technically and economically possible for them to replace the traditional energies with the renewable resources. In contrast, China and other East Asian countries are still in the process of accumulating the economic aggregates and meeting the skyrocketing needs of the energy, and traditional energies will be playing the main role in a fairly long time. Then it turns to be imperative for them to figure out how can they make a better use of their own endowed merits and what kind of methods can be adopted to utilize the resources in a more clean way.

It is estimated that, by 2050, the consumption of coals will account for more than forty percent of the total energy consumption. So the intensive and large-scale clean utilization of coal resources is by now the most important way to practice “Chinese style” low-carbon development mode. Contemporarily, the burning of coals have brought forth huge amount of carbon dioxide, which takes up about 80% of the total emissions of carbon dioxide, and huge emissions of sulfur dioxide

,which take up an even higher proportion of the whole emissions of sulfur dioxide. Moreover, large numbers of families and industries are still burning the coals in a decentralized direct manner, which caused the severe acid rain and the astonishingly high intensity of PM10 and PM2.5. Thus, in the attempts of reducing the emissions, the clean utilization of coals works as a more direct way than any development of the new energies. The acid rain, especially of the soluble colloidal suspension caused by the extensive use of coals has a worse and more direct effect on the environment than the harm caused by the emissions of the greenhouse gas. Actually, some rather mature technologies, such as the polygeneration energy system can instantly heighten the utilization rate of the coals, and in the field of coal chemical industry, the technologies of the utilization and the storage of the carbon dioxide have been in a ripe stage. Above all, to employ the mature technologies systematically, to utilize the coals intensively and to adopt the clean utilization of coals are the key steps to return the clean blue sky to China. Herein, urbanization is maybe the ultimate resort of the effective clean utilization of the coals.

Making a breakthrough in the supply of quality liquid state and gas state energies by paying more attention to the development of shale gas and shale oil is a predictable vision. With the development of shale gas, America's natural gas is able to be self-sufficient in the recent years. And in the foreseeable future, the wide development of shale oil can even turn America into a net exporter of crude oil. The outlook of China's shale oil development is also quite bright. According to the estimation of US Energy Intelligence Agency (USEIA), China's shale gas resources account for one fifth of the whole world, and possesses the world's biggest technical recoverable reserves. Now Chinese government has listed the shale gas as one item of corner stone in the five-year energy plan, and plans to increase its commercial production from today's zero to 60 billion per square meters each year. If investments are continually infused into this field and the technologies of development are well absorbed and mastered, it will be possible for China and other East Asian countries to witness the similar great changes that have taken place in America.

Being faced with the restrictions of resources, we need to broaden inflows as well as regulate the outflows. And our future aim of development is to set up an energy-saving mode which provides us average comfortableness. As a matter of fact, on the one hand, the per capita resources of China and its neighboring East Asian economies fall short, and their supplying pressures are great. On the other hand, their energy consumption per GDP is tremendous. As to this phenomenon, several reasons can be attributed to, take China as an example, many high consuming industries with low added value are supported by the government which are driven by the impulse of collecting more tax, while the goal of saving energy is only a "soft target" (which means achieving the goal of saving energy is lack of actual constraint force and the evaluation of the goal is mostly subjective), and is full of statistical chaos. What's more, though it has been talked about a lot, it is scantily practiced by the industries. And common people fail to take energy-saving as a kind of living style but just follow the westerners' consuming mode blindly and indiscriminately. In such kind of situation, the government should manipulate the means of market, and make a practical assessment of the real social costs of the energy's utilization and more importantly, to price the energies reasonably.

A long-term perspective should be taken while thinking about the treatment of the polluted environment. The negative influence of carbon dioxide and other greenhouse gases can be naturally degraded, but the heavy metal deposition, water eutrophication, subsidence of the mining area and the

suffusion of PM2.5 will harm the underdeveloped economies more relentlessly which also demand greater costs to restore the environment. As China and many other East Asia countries have stepped into the threshold of moderately developed countries, it is nearly impossible for their environment to avoid being polluted, but as to the treatment of pollution, it is absolutely possible for them to avoid falling into the trap of equating the transfer of the industries with the transfer of pollution. So what being urgent for all is to attach more importance to the environment when weighing and balancing, and never could we seek the temporary, limited cash flow but at the expense of generations' health.

To make full use of the external environment, and guarantee the supply of resource products and agricultural products. With the great changes of the global resource market, the structure of supply and the growing demand, the prices of the resources have increased with greater proportions. In recent years, crude oil, iron ore and all kinds of non-ferrous metal have experienced their all-time high prices, and it burdens China and other East Asian economies with more costs of development, most of whose industries are still high-consuming. In the foreseeable future, it is estimated that, the global prices of resources will be much higher. And in due time, to get the stock right of those international resources of enterprises is to seize more shares of resources in the world market, and is also one of the way to enrich and diversify the national assets. China, because of some institutional reasons, has a very high cost in this regard. Thereupon, the East Asian countries should encourage their private enterprises to open to the world market, and try to meet the growing needs of resources in the future with more means of market while evading the narrow-minded safety notions of rice and resources.

2. Culture and Education: the Soft Restriction of Asia's Sustainable Miracle

Different cultures can cultivate different civilizations and cultural spread and diffusion will definitely arouse a shock to the original cultures and civilizations in different regions. Although the differences in culture are mainly caused by the due geographic location, we still need to understand and analyze the interactive effects between cultural development and the economical progress from the perspective of duration. The core carrier of culture should be the organized system among human activities i.e. the various kinds of social economic systems that extensively exist and closely related to our daily life. In the long history, human beings have been living and working together in compact communities, during which a set of specific rules and assembled techniques has been created. As a result, the systems of human activities in different regions are organized and in an order. Being relatively stable, the systems also have formed some certain regular patterns and characteristics. The reason why a country will establish a certain economic system is deeply rooted in that country's core culture. Even in the circumstance that some countries are sharing the same market economic system, they may exercise it in different forms with various characteristics. The reason is that they are quite different in their cultures.

According to the mainstream viewpoints of neoclassical economics, the internal logic of economic theory models still need social practices to test and prove although they are always the results of abstract deduction. If the condition of application is not considered, the most perfect economic theory will lose its explanatory power and applicability. Instead, it's the culture that becomes the key factor to make the application of theory be possible. As early as 1950s, German economist Eucken has already realized that the prerequisite of a sound market economic order should include

good social order, value criterion and cultural concept. Besides, these cultural prerequisites can't be achieved only through some reform and measure.

Seen from the fitting degree of modern market economic development, the multifaceted reasons for the widespread of Confucianism, communitarianism and authoritarianism in Asia are understandable. Firstly, the Asian culture emphasizes the golden mean, which do not encourage people to be outstanding or have a style of their own. Because of that, the creativity in this region has extensively been restricted. Thus we can understand better about one phenomenon that China could remain a world leader during the long agrarian age of thousands of years, but was unable to create its industrial civilization independently. Without taking various systems into consideration, we can still find that even the spirit of independence and self-motivation and sustainable creativity required by industrial revolution can not get well with the profound traditional Chinese culture.

Secondly, the traits of golden mean that Confucianism encourages, however, are the essential factor for Asian countries' efficient and rapid growth in the path of industrialization with learning as its feature. In the process of catching up with the developed countries, creativity is not the urgent requirement. Instead, diligence, thrifty and discipline are more important, highlighting the merits of Asian cultures. And the training-oriented education system long existing in the region has deepened this trend. However, with the continued economic take-offs of countries in this region and the impact of globalization on the national borders and its remodeling in the network era, creativity has for the first time become an indispensable factor for us to achieve sustainable development. And how to break the restriction of traditional culture has become an inevitable challenge.

Lastly, in those Asian nations, people tend to be obedient to the authority. In the shadow of the modern history, sovereignty transfer and supranational integration have become particularly difficult in this region. In Asia, especially among East Asian countries like China, Japan and ROK, there's always lack of proper condition to foster regional integration. Now, how to promote the achievement of regional integration under such a new circumstance where the global multilateral trade negotiation remains stagnant and regional cooperation and competition are becoming more and more common, has turned out to be another bottleneck to restrict Asia's rapid and continuous economic development.

In conclusion, after the miracle of economic growth, Asia is confronted with all kinds of economic restrictions among which there are some inherent imperfections. However, with the upgrade of economic development, some previous unimportant defects are suddenly becoming more and more serious. Besides, there are some new restrictions stamped with the characteristics of the era, emerging with this globalized and rapidly transformed world economic environment. Actually, exchange rate and resources have become a hard restriction to the successful economic take-off in Asia, and culture and education will be a core soft restriction for us to maintain a continuous Asian miracle.

III. The Key and Countermeasure of Achieving Sustainable Economic Growth in Asia

1、亚洲的国际分工与经济增长模式

With the impact of the recent global economic crisis, Asian countries, especially China, Japan and ROK have all witnessed a more serious drop in export than expected. The degree has gone far beyond

that in Keynesian theory which puts it that when the domestic demand of a country includes a certain portion of import, the export to this country will drop if the domestic demand weakens. Since 1990s, based on the gradual labor segmentation in production and the pursuit of minimality of production cost, some transnational enterprises has tried to make it possible to choose the optimal country and region for production after taking these factors into consideration. As the production segmentation further extends and the demand for Asia's end products increases, the trade of semi-finished products and components in this region has swiftly expanded.

Being different from the traditional statistical approach which is based on the country of origin, commodities nowadays will be classified into intermediate products, finished products, production materials and etc. according to their nature in manufacturing. When observing the trade after the year 1990 in Asia, we can first notice that extra-regional trade has witnessed a vigorous growth as the intra-regional trade has done. As for the total volume, the growth degree of the extra-regional trade is higher than that of the intra-regional trade. Seen from the perspective of industry, the trade of electro-mechanical products and general machinery is the driving force of intra-regional trade increase. And seen from the nature of commodity, it is led by the trade of components and parts. Most components are electromechanical products. And semi-finished products are belonged to petrochemical industry. Thus it can be concluded that it's the outsourcing of semi-finished products and components and segmentation of production that promote trade development among Asian countries. Since 1995, especially after China's entering into WTO, the growth rate of extra-regional trade has surpassed that of intra-regional trade, as the integration of production in Asia is being promoted while the development of intra-regional trade is slowing down. It is mainly caused by Japanese enterprises' going global, which shrinks the trade volume between Japan and other Asian countries, forming a contrast to the previous situation. On the other hand, China's increasing export to the United States and other countries is becoming a new driving force. From the perspective of industry, finished consumer goods and means of production, such as electrical machinery, transport machinery, toys and sundries products contribute most to the growth of extra-regional trade. Finished products account for 60 percent of Asia's total export volume to other regions and countries.

As we have noticed that, Asia's import is also seeing a trend of gradual increase. Most imported goods are components and semi-finished products. Thus we can say that outsourcing is no longer confined in East Asia. Instead, that outsourcing to countries outside Asia, especially to the United States becoming an essential trade form has showed that the globalization of value chain has reached a new high. Generally speaking, the demand from other regions makes East Asia play a role of processor. In other word, the extra-regional demand plays a pivotal role in East Asia's economic progress. At the same time, according to the recent study, apart from the production segmentation and its effects, the productivity of export industry in Asian countries are far more higher that that of non-export industry. Besides, there's a huge gap between productivity of imported components and semi-finished products and that of domestic products. However, in the process of globalization, technological spillovers from the former to the latter are becoming more and more obvious. All in all, external demand is still a driving force for Asia's economic growth. And international division of labor and trade forms based on the industry chain and value chain are the major impetus of East Asia's sustainable economic development.

2. Economy's Dependence on External Demand and Its Vulnerability

As mentioned above, since 2000, the motive power of Asian economic growth has become the production network which is based on the regional international division of labor, and the increasing export. However, under the shock and impact of recent financial crisis, the vulnerability of this economic system in Asia has been thoroughly exposed. Generally speaking, international capital flow and international trade in Asia will suffer from the global financial crisis. The feature of this crisis is that international capital flow influences little on Asia's financial market but attacks the regional real industry very seriously. The reason for the former situation is that after the Asian financial crisis in 1997, every economy's financial systems are more stable. They particularly reduce the holding-shares of securitized financial derivatives which caused this financial crisis. As a result, the whole financial system of Asian economies does not suffer so much. But in the international trade, export to developed European countries and America has greatly reduced, which in turn affects the regional real industry. As mentioned, after 2000, under the division system of industry and value chains, Asian economies have begun to produce components and semi-finished products with competitive advantage, which then processed and assembled by China into finished products and exported to Europe and America. Consequently, weakened external demand caused by financial crisis in turn reduces the regional trade volume and then the production. It shows the vulnerability of economic system which depends on the external demand. Those economies in which the external demand contributes high rate of GDP suffer most in the crisis.

For example, countries in the region have a different degree of suffering and recovering. Among those countries, China, though with a huge volume of export, recovers more quickly from the crisis with the help of large-scale stimulus package than other Asian countries due to its small portion of export of the GDP. Countries but regions and countries like Singapore and Hong Kong, where export takes up a large portion of GDP, do not recover so quickly. But we can also find that since the implementation of China's stimulation policies on its domestic demand, these countries have a recovery successively after six months. Thus, it is very important to the Asia's economic growth in the future that to reduce the influence of western economic fluctuation on our external demand through promoting the trade of finished product and increasing export to other countries and regions except those European countries and America. Compared with EU and NAFTA, Asia's export rate of finished product is still very low. One reason behind it is the income gap among Asian countries and the difference of their demand patterns. Besides, the different market maturity, obstruction caused by different politic or economic systems and the trade protectionism concerning tariff or non-tariff barriers are other reasons for it. These factors not only restrict Asia's production network from being more compact, but also hinder the competitiveness of the whole region. What's more, the vitality of regional economic growth as well as the transformation of external demand to the internal demand will also be affected.

3. The Possibility and Issues of Expanding Domestic Demand

The population of Asia comprises 1/3 of the global population. With the ongoing development of economy, per capita income of Asian people is improving constantly, and the middle-class (their average annual income reach 5000\$) with certain purchasing power is emerging. According to the

prediction of OECD, in the coming 20 years, the per capita income of Asian people will be doubled. So the optimists think that it's easy for Asia to expand domestic demand. In fact, suffering from the financial crisis in 2008, Asian countries begin to value the expansion of domestic demand through the policy of providing subsidies for rural residents to trade-in old motor vehicles and home appliances for new ones and reducing or exempting taxes. Among those countries, China is the one taking the lead in expanding domestic demand. Especially the policy that increased financial support was extended to the construction of infrastructure promotes the increase of import and benefits the resumption of Asian economy to global economy to some extent. However the effect won by series of policies in encouraging consumption directly will not prolong. Only by sustaining the growth of people's income can we combine the ongoing growth of personal consumption with the development of regional economy. So it's necessary for us to eliminate problems precluding consumption over a fairly long period, such as the action to remove the imparity of income distribution and improve the social security system etc.

There is a large difference among Asian countries in the distribution of disposable income. Especially the countries like China and India whose populations comprise almost 3/4 of the Asian population have a larger percent of low-income people. Generally speaking, the consumption (about entertainment and luxury etc.) beyond the basic consumption (including basic necessities and medical costs) will take a higher proportion as the income increases. There is no doubt that if the per capita income of low-income is increased sustainably, it will be likely for Asian countries to expand the domestic consumption. But the issues inhibiting consumption are various among Asian countries. And one of the most important issues lies in the disparity of income. In China, the disparity of income is increasing between the rural and the urban, among different provinces and different regions of the city while in Thailand, the Philippines, and Indonesia etc. the disparity of income is growing between the regions with industrial clusters and the regions without industrial clusters. Therefore, besides the issue of unfair income, the vast majority of people being in middle low-class and the difficulty of increasing people's income also have a bad effect on the expansion of consumption power. Take China for example, it is still difficult to make durable goods more widely throughout the rural. So it's critical to stimulate the potential consumption power by implementing related policies aiming at decreasing income disparity. On the other hand, it is uncommon in Asia that countries have perfect social security system and financial system. The spending for housing and education make people tend to deposit, while at the same time, the worries for future lives such as heavy illness and unemployment force them to deposit. As a result, the consumption power of people will decrease. It can be shown by the phenomenon of China that the savings rate increases along with the growth of economy. But in the Philippines, since 2000, the increase of consumption has surpassed the growth of economy for its improved social security system. But, on the whole, the majority of other Asian countries are still in need of improving old-age pensions, medical insurance and social security system, otherwise even if the income has increased, the increased part will turn to deposition rather than consumption. Thus, to improve the related systems is the important guarantee for expanding consumption.

Additionally, the structural obstacle of economy is also the worrying factor affecting the expansion of consumption, and especially the dual structure in their labor markets is hard to eliminate. A large number of workforces with low quality have no opportunity to take part in the middle-end and

high-end manufacturing directly, thus the salary of these industries increase rapidly. At the same time, for the slow increase of productivity, the difficulty of increase facing the wages of low-end industry. As a result, the low-end industries lose their international competition and the opportunity of employment decreases. Then the demand for consumption fails in thriving.

4. Countermeasures and Suggestions

As above mentioned, under the circumstance that there is a long way to go to strengthen the role of domestic demand in fueling economic growth, external demand is still the major driving force of economic growth. So from the perspective of supply, in order to sustain and promote exports, some industries of Asian countries need to participate in the division system of industry chain and value chain positively while keeping their factor endowment, and then transfer the factor drive into the efficiency drive so as to motivate the transformation process of low-end industries towards high-end industries.

From the level of theory, the involvement of the developing economies in international division of labor has its own mechanism where they can make breakthroughs in “source endowment” and form a new comparative advantage on the basis of factor cost and transaction cost advantages. In the primary stage of industrialization, the development of industries often relies on the source endowment for the lack of human resources and fundamental facilities, and on the basis of making the source endowment yield well, the pattern of economic growth is inefficient with large input and large output. However with the accumulation of human resources, the improvement of productivity, which can offset the increase of ‘factor cost’ and the universalization of fundamental facilities and social capital, the transaction of cost can be reduced, and also the bottleneck of source endowment can be broke through. According to trade theory, the way to produce benefit by division is to improve efficiency by specialization and benefit both parties through exchange. While in the division of value chain, upstream and downstream enterprises work with each other, and then they can acquire the accumulation of technology and benefit from the progress of technology. This is the gains brought about by “learning effect” and “technology spillover”. Therefore the rational economic activity of enterprises in chasing profit maximum is the intrinsic motivation for industry chain and value chain to improve further. On the other hand, according to the historical experience, the development process of value chain in Republic of Korea and Taiwan has showed us the way of improvement and the experience of success.

But where we should stress lies in these preconditions implicated, that is whether the human resources has reached the required degree, whether the progressive technologies have been effective (related to factor cost), and whether the fundamental facilities and social capital(here including service sector, especially in the fields of logistics, electric commerce and related financial system) have been well standardized. And also it should be stressed for the international division whether the principles of international trade and investment have advantage for them (related to the transaction cost). Additionally, under the same other conditions, the transaction cost plays a very important role in improving international competition. Factor is to low-end industry what efficiency is to medium-end and high-end industries. At the same time, the high-end oriented promotion drove by efficiency is good to overcome the pressure brought by increasing wage and also it is a beneficial way to increase wage. So the strategy in our future should balance the low-end and high-end industries. The combination of

both is the basis to sustain and expand the exports of Asian countries and is also the precondition to expand domestic consumption.

What can be anticipated is that the serious anomalies in the economic system, the deficiency in related system and the lack of well-established market cannot be solved by Asian countries in a short term. Also, the increase of wage will impair our competitiveness and it fails to promote the essential consumption effectively. Thus the key of stimulating consumption is not to increase wage, especially in low-end industries, the strategy should not aim at increasing wage but creating more jobs for the unemployment. While this means the principles of international trade and investment in this area need to be reconstructed. So we Asian countries need working together to promote the establishment of FTA and reconstruct the new principles of international investment through reforming the financial system so that the capital can integrate into the value chain from the low to the high according to their own choices to improve the productivity. For example, as the representative of high-end industry chain, Japan provides guidance for the low-and medium-end industry to improve continually and make them return to the industry and value chain of Asia by establishing FTA. While at the same time, Japan stick to keep the low-end industries and take advantage of the comparative superiority in factor endowment, and then create more jobs by expanding the size of the low-end industries. As a result of these measures, the domestic consumption has been stimulated. If we can do it well, there will be more space for the economy of Asian area to increase in the coming 5 years or 10 years.

Above all, we can see that the basic feature of Asian area in economic growth is the over dependence on external demand and the lack of domestic demand. The first reason for this lies in the juvenility of market and the deficiency of systems which causes the polarization of labor quality and the expansion of income gap. Secondly, with the deepening of industry and value chain and international division system, the pressure of increasing wage appears. Thus, once the external demand is contracting, it will be easy to fall into the dilemma that the balance of low-end industries has been broke while the balance of the high-end industries have no possibility to be achieved in a short time. The key point to break through the dilemma is the increase of the factual per capita income. In order to achieve this goal, we put forward the following suggestions on policy.

Firstly, under the condition that the domestic consumption is very weak, we need to deepen the international division system with Europe and the United States and other developed countries by promoting the principles of international trade and investment. At the same time, we need to enhance our competitiveness in exports by improving the related system and integrating the financial system, and also upgrading our productivity.

Secondly, during the process of involving ourselves in the division system of value chain, we need to drive the transformation of industries into high-end ones, and realize the deepness of wage step by step. At the same time, in order to cultivate the internal market, we need to give full play to the role of the comparative advantage in labor with low quality and expand the size of industries to create more jobs, and also promote the urbanization.

Thirdly, sticking to the low exchange rate appropriately should be the goal of china and other East Asian countries even with some cost. When having the necessary conditions, we should develop FTA among Asian countries or with the Europe countries and the United States, while at the same time try our best to reduce the cost of international trade. Thus we can make full compares for the policies

of exchange rate with high cost.

Fourthly, facing the bottle neck of resources, exploitation and conservation should be combined together. The model of development should be in rational degree and in low energy consumption. The government should give full play to the role of market, and give true assessment to the cost of using social resources, especially in the pricing of energy. As to environment issues, we strive to control carbon dioxide economically and make full use of the external sources to guarantee the supply of agricultural and resource products.

Finally, it is also important for Asian countries to reflect the necessity of cultural modernization, and inject fresh creativity into educational system and social system. Thus we can shore up the foundation for expanding our social competitiveness.

Appendix: The major Asian economies in this part



Note: In this part the major economies of East Asia and Southeast Asia include China, Japan, the Asia's "Four Little Dragons" (Hong Kong of China, Taiwan of China, Republic of Korea, and Singapore), and the Asia's "Four Little Tigers" (Thailand, Malaysia, Indonesia, and Philippine), and also the ASEAN economies (Brunei, Cambodia, Indonesia, Laos, Malaysia, Burma, Philippine, Singapore, Thailand, Vietnam).

Emerging Asian Renewable Energy: from New Technology and New Industry to a New Market

1. Research Background

The crucial period has come for Asia to develop its renewable energy. The technology is improving and the industrial scale expanding for the renewable energy development of Asia, as China, Japan, ROK (Republic of Korea), India and other Asian countries make breakthroughs in the scientific and technological R&D (research and development) and equipment manufacturing in the fields of wind power, solar photovoltaic power, biomass energy, smart power grids, etc. But meanwhile, such a development is faced with the prominent problems of scant domestic demand and insufficient advanced technology. On the one hand, the renewable energy industry of Asia, with the manufacturing capacity exceeding the domestic demand, relies highly on the western markets; on the other, Asia's technologies to design, manufacture, and operate the large-scale and advanced electricity generation systems of renewable energy are less developed than those of the leading countries in the area. For its capacity in manufacturing the mid- and low-end equipments and incapacity in developing, utilizing, and manufacturing the high-end equipments, Asia depends highly on the developed western countries to push forward its renewable energy industry. Therefore, the renewable energy development of Asia is not only restricted by the pace of the recovery of the global economy, but also suffering from the protectionist policies of the developed countries and the competition with the world leading new energy enterprises. This report attempts to make a comprehensive comparative research on the overall development strategy, manufacturing capacity, and the developing and utilizing ability of the major Asian economies in terms of renewable energy. Based on the research, the report focuses on the appropriate and effective policymaking for the renewable energy development of Asia, and analyzes the strategic emphasis for Shanghai City to develop its renewable energy.

2. Analysis on the Situation and Trend of Asia's Renewable Energy Exploitation and Utilization

Statistics of 2011 show that China owns the largest installed electricity generation capacity of renewable energy in the world, which reaches 70 GW. India ranks the sixth, with a capacity of 20 GW; and Japan the seventh, with a capacity of 11 GW. Generally speaking, Asia's renewable energy exploitation and utilization show the following features. 1. Wind power and solar photovoltaic power dominate the development of renewable energy, while the development of biomass power and hydroelectric power is comparatively slow. 2. The Asian countries with large populations, abundant resources, and huge economies attach great importance to the development of renewable energy. China and India becomes the mainstay of the development of renewable energy, following the Japan and

other leading countries in this field. The development of renewable energy has become an effective means for the developing economies to solve poverty problems in rural areas, increase employment, and improve fairness in energy distribution. 3. As the share of renewable energy continues increasing in the total electricity supply, the countries with more market-oriented electricity industry start to build up green electricity (electricity generated by renewable energy) market and provide subsidies to the grid purchase price, so as to boost the development of renewable energy. 4. Photovoltaic and heat collection electricity generation become the main forms of solar power electricity generation projects, with large-scale ground photovoltaic power stations and integrated photovoltaic systems of building as the new trend. Photo-thermal electricity generation, as a complementary means, is in an imbalanced distribution among regions. Japan remains the country with the largest installed photovoltaic electricity generation capacity in Asia and takes a share of 7.1% in the total capacity of the world. China, with a share of 4.4%, ranks the sixth in the world. 5. China and India contribute a lot to the high-speed increase of Asia's wind power development and utilization. China takes the largest share (17.6%) of the world's installed wind power electricity generation capacity. India ranks the fifth, with a share of 3%. The trend of the wind power projects is to use large-scale and high-capacity units, while the usage of smaller-sized units is also increasing. Offshore wind power electricity generation, as the strategic focus of China, Japan, and ROK, is developing to be equipped with units with larger capacity and more adapted to generate electricity in deepwater areas. 6. With solid biomass energy projects as the dominating method, the biomass energy electricity generation of Asia develops not as fast as that of the North American and European countries. 7. Generally speaking, geothermal energy develops slowly in Asia, with Japan as the leading country.

3. Analysis on the Situation and Trend of Asia's Technological R&D and Industrial Development of Renewable Energy

Asia's industrial and technological development of solar power electricity generation shows the following situation and trend. 1. The manufacturing of solar photovoltaic cells is concentrating to China, but the market concentration is declining and the intra-industrial competition rising. The reduced subsidy for using photovoltaic products in Europe abates the demand of such products. Therefore, the prices of the main products are decreasing, and the development of the photovoltaic industry in the whole world is hindered and moving from a high-speed expansion into a fluctuating adjustment. 2. Crystalline silicon technology dominates the solar photovoltaic projects. But the hull cell technology, with a lower cost than the crystalline silicon cell, is getting more mature in Japan, China and other Asian countries, so that many Asian enterprises start to invest in the technological R&D and industrial development of hull cell. Enterprises of China, Japan, and ROK are ascending to the giants of hull cell manufacturing in the world. 3. The industry of solar photo-thermal electricity generation remains concentrating in the USA and Spain, but the development of industry is accelerating in Asia. China and India have started their large-scale heat-collection electricity generation projects and choosing their major technologies. New technologies such as tower plants and plants with dish concentrators remain in the demonstration stage.

Analysis on the Situation and Trend of the Industrial and Technological Development of Asia's

Wind Power Electricity Generation: 1. Enterprises of wind power electricity generation equipment are competing with each other fiercely in the market, and the concentration of the industry declined to a certain degree. Asia's major enterprises of wind power electricity generation equipment are racing to control and explore the emerging markets. In 2011, half of the top ten enterprises of wind power electricity generation equipment were Asian enterprises with a market share of 34.4%, including four Chinese and one Indian enterprises. Other Asian enterprises are still lagging behind their western counterparts in this industry. 2. One reason for the price of the wind power equipment to fall in the whole world is the reduced cost in the large-scale manufacturing. But the market restructuring and the lack of demand are also the reasons worth noticing. Due to the fast expansion at the early stage of development, the wind power equipment enterprises are suffering from more shock from the market and pressure from adjustment. In those enterprises, the Asian giants Goldwind, Sinovel from China, and Suzlon from India undergo great competitive pressure. However, from another perspective, the falling cost of equipment brings more advantage to wind power in its competition with the traditional thermal power. 3. The R&D and large-scale application of high-power equipment, especially the large-sized equipment with a capacity of over 5 MW that is suitable for offshore wind power development, become the focus of the industrial development in the world, as the technology to manufacture the small- and medium-sized wind power equipment gets mature. Wind power equipment enterprises of China and India remain lagging behind in manufacturing equipment with a capacity of over 6 MW.

Analysis on the Situation and Trend of Asia's Industrial and Technological Development of Biomass Power: 1. Enterprises of North American and European countries dominate the solid biomass energy industry, while enterprises of China, India, and Japan are developing fast in large-scale electricity generation projects besides the traditional utilization of solid biomass energy; 2. In terms of methane industry, the output of methane biomass energy in Europe is increasing rapidly, while in Asia, the industry is developing mainly in China, India, Sri Lanka, the Philippines, etc.; 3. Enterprises of the USA, Brazil, and European countries dominate the industry of liquid biofuel, such as biodiesel, while the route of the technological development of Asian Enterprises remains uncertain but the general principle is to develop non-grain liquid biofuels.

4. Policies and Supporting Measures to Promote the Development and Utilization of Renewable Energy of Asia

4.1 Regulatory Policy to Promote the Development of Renewable Energy of Asia

The development of renewable energy relies on the new breakthroughs in scientific and technological innovations and the constantly favorable situation of the emerging markets. Basically, the major Asian economies take the general principle of "government promotion as the priority, legal protection as the base, market competition as the main form, and the scientific and technological innovation as the key" as their national strategy to promote the large-scale development of renewable energy. Yet considering their respective resource endowments, scientific and technological R&D abilities, and the foundations of the renewable energy industry, the countries also have to take different goals, steps, and focuses in their development of the renewable energy.

(1) China

China's goal of developing renewable energy by 2020 is to increase the share of renewable energy in total energy consumption, to bring electricity to the remote areas that has no electricity supply so far and solve the fuel shortage of rural areas, to transfer the organic waste into energy, and to industrialize the technologies of renewable energy. The overall strategy for the development is constituted of sufficiently using the mature and economical renewable energies including hydroelectricity, methane, solar power, geothermal power, etc.; accelerating the industrialization of wind, biomass, and solar power generation; and increasing the share of renewable energy in total energy consumption. The goal is to raise the share of renewable energy in total energy consumption to 11.4 % by 2015, and 15% by 2020. In the Plan for Energy Development for the Twelfth Five-Year Plan Period, the goal for the development of renewable energy is to raise hydroelectric power capacity to 290 million KW with an average annual increase of 5.7%, wind power capacity to 100 million KW with an average annual increase of 26.4%, and solar power capacity to 21 million KW with an average annual increase of 89.5%.

At the present stage, the important task for China's renewable energy development is to improve the technology and establish a robust industrial system. By 2020, the robust industrial system of renewable energy should have been established to significantly reduce the cost on exploiting and utilizing renewable energy and lay a solid foundation for a large-scale exploitation and utilization; and installing ability of renewable energy with proprietary intellectual property rights should have been gained to make China's technology of renewable energy greatly competitive in the market, and renewable energy a key source of energy supply.

(2) Japan

After the Fukushima nuclear accident, Japan set a goal to make 20% electricity consumption supplied by renewable energy by 2020. In 2012, the Japanese government announced its new strategy of the leapfrog renewable energy development to increase the electricity generation capacity of offshore wind power, geothermal power, biomass power, and ocean (wave and tide) power by 2030 to six times of the capacity of 2010. Respectively speaking, the electricity generation capacity of offshore wind power is expected to increase to 8.03 million KW from 30 thousand KW of 2010, that of geothermal power to 3.88 million KW from 530 thousand KW, that of biomass power to 6 million KW from 2.4 million KW, and that of ocean power, which is under research, to 1.5 million KW. Previously, Japan declared that the electricity generation capacity of solar power is expected to reach 28 million KW by 2020, an increase of 19 times over 2012, and 53 million KW by 2030, an increase of 29 times over 2012.

To reach the above goals, floating electricity generation technologies of offshore wind power are expected to be industrialized by 2020; more effective new technologies are expected to be adopted in terms of electricity generation of geothermal power and biomass power; and more mature technologies to utilize wave and tide power are expected to be adopted by 2020. According to the expectation of its government, Japan would meet its demand of electricity without nuclear power if it could achieve the goals set by the new strategy of renewable energy.

(3) ROK

ROK claims to raise the share of renewable energy to 11% of the total energy supply by 2030 from 2.4% at the end of 2010. In March, 2010, ROK put the Renewable Portfolio Standard (RPS) into

practice, which requires that the 14 state- and privately-owned public utility enterprises should raise the share of renewable energy to 4% of their total energy supply by 2015, and to 10% by 2022. The standard compulsorily requires that the renewable energy supply should rise to 350 MW per year by 2016, and to 700MW per year by 2022.

(4) India

The Integrated Energy Policy Report (IEPR) published by the Planning Committee of Indian government claims that by 2031 to 2032, the share of renewable energy is expected to reach 5% to 6% of the total energy consumption of India.

In 2011, Indian government declared to increase the installed electricity-generating capacity of renewable energy by 17 thousand MW in five years from 2012. In 2011, India installed 20 GW electricity generation capacity of renewable energy, which equaled 11% of the whole installed electricity-generating capacity. It is estimated that India would need 1.5 trillion rupees (33.6 billion US dollars) to accomplish the goal of the new installed electricity generation capacity in its 12th Five-Year Plan Period.

4.2 Incentive Policies and Guiding Policies to Promote Renewable Energy of Asia

(1) Price Mechanism

Currently, five kinds of renewable energy pricing mechanisms have been adopted by countries in the world, namely fixed pricing mechanism, floating pricing mechanism, compulsory quotas, trade scheme and green energy pricing system. In a fixed price system, government sets the price of renewable energy product while in a floating pricing system, government sets the price of renewable energy at an appropriate proportion of the price of conventional power after taking it as a reference and the price of renewable energy may float according to the changes in conventional power market. Compulsory quotas (In this system, energy enterprises must generate or sell a assigned amount of renewable energy when they generate or sell conventional energy) and trade scheme (In this system, government issues green transaction certificate to enterprises; Green transaction certificate can be traded between enterprises and the price of green transaction certificate is determined by market) empower the market to self-regulate and thus increase the price of renewable energy product. In a green energy pricing system, energy consumers voluntarily subscribe to renewable energy product at a subscription price set by government.

China has adopted fixed pricing mechanism to regulate its renewable energy market. Chinese government sets 4 benchmark prices of wind power at 0.51 yuan per KWH, 0.54 yuan per KWH, 0.58 yuan per KWH and 0.61 yuan per KWH according to different wind energy resources and conditions for construction in 4 different regions. On-grid price of biomass power is formulated at 0.75 yuan per KWH and on-grid price of photovoltaic power at 1 yuan per KWH. Japan has also adopted the same mechanism. Households and businesses with a generating capacity under 500KW can sell spare electricity to electric power companies. Japanese government includes wind power, hydropower, geothermal power and biomass power into purchase targets in Special Measures for Renewable Energy Purchaser.

(2) Fiscal and Taxation Policy

Tools of fiscal and taxation policy are government intervention to correct market failure and

provide guidance for investors and consumers. Currently, economic incentive is the most commonly used tool to promote the development of renewable energy and usually achieved through fiscal and taxation policy, including stimulating policies and suppressing policies.

Stimulating policies includes: (1) Using national debt funds to invest in renewable energy industry. National debt funds are mainly invested in basic industries. Energy and energy-saving industries, being part of the foundation of national economy in any country, should account for a certain share of national debt. (2) Financial discount and subsidy policies. Financial discount and subsidies draw more social capital into the field of renewable electrical energy by direct and indirect inputs of a small amount of financial funds. Financial discount is generally applicable to renewable energy projects or producers related to supply, conversion, storage, transportation, and energy saving of renewable electricity energy while subsidy is not only for producer but also for downstream consumers. (3) Preferential tax policies. VAT concessions and VAT return policy are commonly used as preferential tax policies; but these policies should be limited to a certain range to prevent misuse. Besides, preferential income tax, import and export tax concessions (for key equipment) are also commonly used policies. (4) Government procurement policies which emphasize the promotion of renewable electricity energy and energy-saving products. (5) Financial guarantee policies. Financial guarantee uses the principles of venture capital to support renewable electricity energy. Based on the principles of supply and demand, due to the high cost of renewable energy, non-renewable energy is the main supply in the market which will be in equilibrium. In order to promote renewable energy, government should adopt economic incentives, which decrease renewable energy market prices and increase the amount of renewable energy supply, to bring in scale economies effect. Thus, these policies can effectively promote the development of renewable electrical energy. However, it must be noted that these stimulating policies will only work when enterprises' costs of renewable energy is lower than that of non-renewable electricity energy.

Suppressing policy includes: (1) Expanding the scope of consumption tax; (2) Imposing fuel tax; (3) Imposing energy tax; (4) Reforming measures for collection of bankruptcy resource compensation; (5) Canceling financial subsidies to energy-intensive industries as soon as possible. Suppressing policy internalizes a company's external costs, such as environment pollution and ecological cost caused by traditional non-renewable electric energy. By raising the costs of the competitor of renewable energy, suppressing policy changes the demand and supply in energy market and creates opportunities for renewable energy.

Now, China offers subsidies to renewable energy sectors, such as wind power, photovoltaic power and biomass power, by using renewable energy additional tax imposed nationwide. Besides that, Chinese government has made a budget allocation from fiscal revenue to set up the Golden Sun Project to subsidize the initial construction cost of photovoltaic systems. In addition, China has also established and developed special funds to encourage researches on technologies, establishment of standards and demonstration project of developing and utilizing renewable energy and local production of renewable energy devices. Since 1993, Japan has implemented the New Sunshine Project, using fiscal subsidies to accelerate the development and utilization of photovoltaic cell, fuel cell, hydrogen energy and geothermal energy. And then, Japan carried out Photovoltaic Cells on Million Roofs Plan, using fiscal revenue to subsidize the initial construction cost of photovoltaic systems.

However, fiscal and taxation policy only has a minor influence on promoting the development and utilization of renewable energy in certain aspects, including: imposing a 6% small hydropower VAT, halving wind power VAT and exempting taxes or set a low tax rate on part of the import of renewable energy generation devices and components which cannot be produced in China, such as import of key components of photovoltaic cells and large wind power generators.

(3) Construction of Financial Support System

Financial policy, such as low-interest or subsidized loan, reduces enterprise's burden of paying current interest and benefits to reduce cost of production. However, government has to raise a certain sum of fund to support financial policy. The larger the amount of loan and interest subsidies, the more fund the government has to raise. So, supply of fund is a key factor to maintain the policy.

Currently, except for providing financial support to researches on technologies of developing and utilizing renewable energy, construction of demonstration project of developing and utilizing renewable energy and industrialization of key manufacturing device of renewable energy, central government also use national debt to promote the development and utilization of renewable energy. For example, the former Economic and Trade Committee has used special funds in the fourth batch of national debt to carry out National Debt for Wind Power Project and incorporated Wind Turbine Demonstration Project into National Key Technological Transformation Plan 2000. In addition, China has set up special subsidized loans for rural areas to promote the application of small wind power turbine, solar energy utilization technique and large or medium scale biogas project and low-interest loan for construction of some small hydropower stations. China also has given priority to the development of renewable energy with bilingual and multilingual aid and supported a variety of projects with foreign preferential loan. Japan also provides low interest loans to enterprises for the upgrading of new energy devices and development of new energy technologies.

(4) Renewable Energy Trade Facilitation Mechanism of Asia

Countries around the world, especially the great powers, have formulated relevant laws and policies to develop their renewable industries and promote the development and utilization of renewable energy. However, global supply chains of emerging industries, including renewable energy industry, have been established through international trade. A national or regional supportive policy for renewable energy may have an impact on existing international trade mechanism and bring conflict of interests to member countries in international trade mechanism. Policy and measures for renewable energy not only involves the combat against climate change but also international trade laws. Therefore, whether for seeking the validity of authoritative rules and analyzing whether it is a violation of WTO agreements covered agreements, the implementation of measures for renewable energy industry will be inspected by international law. So government should be cautious to avoid triggering trade disputes. Asian countries should give reasonable consideration to the restrains of international laws, especially WTO law to avoid unfavorable situations, and meanwhile, make full use of WTO rules to safeguard the interests of China's renewable energy industry.

5. Suggestions on Key Countermeasures to Promote the Development of Renewable Energy of Asia

This report comes up with suggestions and policies, aiming at tackling with the current situation and challenges for renewable energy, in three key aspects: 1 Ensure efficient consumption of renewable energy by mandatory on-grid system□2 Ensure stable and reasonable revenue and enhance its competitiveness compared with conventional thermal power by flexible power pricing system; 3 Through cost sharing system, make government, enterprises and terminal users sharing the revenues and jointly taking the risks for developing renewable energy. This report suggests that Asian countries should accelerate the formulation of laws for renewable energy and ensure the legal effect of regulations, deepen reforms for the marketization of renewable energy and establish a green power market as soon as possible to optimize the allocation of renewable energy resources, eliminate unnecessary trade barriers, improve the convenience of international renewable energy equipment trade and establish a common market of Asia to boost the large-scale development of renewable energy. Ultimately, a historic breakthrough from traditional manufacturing to green manufacturing should be realized.

6. The strategic focus of development in promoting the renewable energy of Shanghai

In recent years, to implement Law of the People’s Republic of China on Regenerable Energies, the related departments in Shanghai have carried out political and normative documents such as The Trial Measures for Shanghai Green Electricity Marketing, Plan of Shanghai in Development and Utilization of Solar Energy Action and Pilot Scheme of Shanghai on Renewable Energy Deductible Energy Estimates. Following the guidance of the government, the development of renewable energy in Shanghai is motivated and standardized.

i. With the active promotion of government, participation in the market and synergetic promotion from all walks of life, Shanghai has achieved a breakthrough in renewable energy development and utilization, industrial manufacturing, R & D and other fields during the “Eleventh Five-Year” period.

(1) To develop, utilize and form a symbolic project. 100,000kilowatts of offshore wind farm in Donghai Bridge incorporate grids to generate power, becoming Asia’s first large-scale offshore wind farm; the installed capacity of Shanghai’s wind power has reached to 210,000 kilowatts, being about nine folds of that of “Ten Five-Year” period. The power generation projects of China Pavilion and Theme Pavilion’s building integrated photovoltaic (BIPV) has been built as well as the largest rooftop photovoltaic power generation project—the Hongqiao Station 6.7 MW photovoltaic power generation project in Beijing-Shanghai high-speed rail. The installed capacity of photovoltaic power plants in Shanghai is 20 megawatts, and the collector area of solar water heater has reached to 3.5 million square meters. Shanghai has successfully completed the project’s first phase—2.5 MW-power generation out of Old Port landfill gas, which expands the city’s installed capacity of biomass power to 45,000 kilowatts. The shallow geothermal energy and the technology of river water heat pump are applied concentrated in the Expo Axis. In 2010, the city’s non-fossil energy, along with the external hydropower and nuclear power allocated by the national plan, covered 6% of primary energy consumption. The non-fossil energy sources of Shanghai includes local exploited wind power, solar

power and other new energy sources (excluding solar water heating systems).

(2) The formation of several dominant fields by ways of industrial manufacturing. Shanghai marks nuclear power, wind power, photovoltaic power generation and smart grid as the key areas of its strategic emerging industries. It has gradually attracted domestic and foreign new energy enterprises with powerful strength to settle down; had the self-development capacity of large-scale offshore wind turbines; achieved the industrialization of 2 MW onshore wind turbine; got the first order of 3.6 MW offshore wind turbine; initially formed the wind power engineering and technical service system which integrates wind power design, manufacture, installation, maintenance and consulting. In addition, Shanghai has built the first production line of 50 MW silicon thin film solar cell and started to construct the industry base of GigaWatt efficient crystalline silicon photovoltaic.

(3) Important breakthroughs on technology research and development. Shanghai has formed a technology research and development team of independent development and wind power of 3.6 MW offshore wind turbine. With 3.6 MW offshore wind turbine prototype off the assembly line and passing the test, it becomes the largest single capacity wind turbine that in practice in China. Shanghai has made many achievements: Efficient crystalline silicon cells, megawatt photovoltaic power generation technology has made breakthroughs in key areas; the leading level of thin film solar cells, the success in developing plasma enhanced chemical vapor deposition (PECVD) and the low pressure chemical vapor deposition coating (LPCVD) thin-film battery core equipment enables Shanghai to be the first city to make application criteria and standards for detection, including infrared texting. Shanghai, being the first city that developed single sodium sulfur battery of 650Ah in China, has completed test line of sodium sulfur battery with an annual output of 20,000 megawatts, and carried out a demonstration project of 100 kW. Therefore, Shanghai's research and development in the energy storage technology of sodium-sulfur battery is far ahead of other cities of China.

ii. Shanghai has achieved multiple "first" in the development of renewable energy. Meanwhile, it faces a series of challenges and problems. In a period of strategic transition and full of opportunities, it is necessary to analysis the difficulties and bottlenecks in the early development so as to seek new impetus for the development.

(1) Shortage of the resources available and the wide gap between Shanghai and provinces of resources in China. Constrained by factors like land and environment, Shanghai is not rich in new energy resources. Therefore, the resources available cannot satisfy the city's total energy consumption. There is a wide gap in resource endowments compared to major domestic provinces with strong wind power and photovoltaic.

(2) Affected by the application conditions, infrastructure and factor costs, comprehensive development costs of resources are higher than other places. Compared with conventional energy sources, new energy development and utilization are of high costs. As electricity price cannot be effectively lowered, the less competitive of new energy industries becomes one of the main factors that restrict their development.

(3) The lack of core technology, technology without property rights and application are prominent issues. Shanghai are capable of new energy technology R & D and equipment manufacturing, but the core design, technology, materials and systems integration technology are still its shortages, and the capability of independent innovation needs further improvement. The other point

is, there should be a breakthrough in institutional mechanisms, for the less strong support in distributed grid access, management innovation, and further large-scale development of new energy subjecting to the constraints of the relevant existing institutional mechanisms.

(4) Policy supported targeted, continuity, flexibility, coordination needs to be strengthened. More efforts should be applied to boost the development of new energy to be more industry and market-oriented. During the “Eleventh Five-Year” period, Shanghai Chongming County was awarded the first national batch of “Green Energy Demonstration County”, and got the support of special funds from central government. Afterwards, a number of national R & D centers settled here, including National Energy Offshore Wind Power Technology and Equipment R & D Center, National Energy Smart Grid R & D Center (Shanghai) and the Center of National Energy Nuclear Power Plant Instrumentation R & D and Testing. To support the manufacturing industry of new energy equipment, Shanghai has issued Rules on the Promotion of New Energy Industry in Shanghai, Action Plan on the Promotion of Shanghai’s High-tech Industrialization of New Energy, and established guidance funds for new energy entrepreneurship. Shanghai has also carried out Supporting Measures of Shanghai’s New Energy and Renewable Energy Development Funds to support the demonstration of new energy with all its strength. Overall, the government inputs didn’t help the new energy industry transform completely from the technology research and development to the industrial application. Demonstration projects haven’t formed their competitive advantage in the market process. The optimization of support mechanism in future and “targeted support” mechanism supported by the policy will stimulate the development of renewable energy directly.

iii. As the booming development of world’s new energy, the deeper influence of economic crisis stimulates economic giants in resource to seek re-industrialization process. They treat new energy industries as the strategic guidance of the economic recovery, industrial revitalization and even the industrial revolution. Shanghai, in the critical period of innovation-driven, transformation and development, shall master new energy technologies, do better in new energy manufacturing industry as soon as possible, in case of missing another round of industrial change.

(1) The integration of new energy and information technology is possible to become the dominant direction of new industrial revolution. It is concerned, in the 21th century, by all the governments and industries that in what ways will the “new industrial revolution” trigger a new round of global economic growth and that whether this would eventually promote the “third industrial revolution”. Many indications have shown that, after the integration of all aspects, the information industry with rapid growth and the emerging energy industry may trigger the Third Industrial Revolution. Featuring distributed and intermittent energy usage, the technological paradigm of emerging energy industry has broken the traditional mode of energy supply which is centralized by a framework of large-scale generating units of thermal power and a wide range of grid systems. The most significant meaning of this technological change is that it has remarkably improved the transfer efficiency of energy, and reduced the energy loss caused by thermal power and network transmission from nearly 50% -60% to 20-30%. In economic terms, this technological revolution actually breaks the basis of traditional power sector’s monopoly: economies of scale and network economy on which the centralized power supply system depends are no longer unbreakable. The development of distributed energy is precisely emphasis on the investment shifts from centralized investment to parallel

investment to achieve the increasing returns to scale by upgrading technical efficiency. Meanwhile, in terms of manufacturing costs, as the application of scale gradually expands, the cost of economies of scale in the market is largely decreased, the economic efficiency of the distributed energy further highlighted.

(2) Two factors have increased the uncertainty of the prospects for the development of renewable energy: The application of new technology to traditional energy sources and the emergence of unconventional energy. Therefore, the pre-capital investment for development of renewable energy may become idle cost unless the large-scale development and industrial development are implemented as soon as possible. On the one hand, most of the new energy technologies are not yet fully developed and is higher in cost than that of fossil energy. However, sectors of traditional fossil energy have been exploring the technology of utilization in a clean and efficient way. The clean coal technology and IGCC technology are powerful competitors of renewable energy. On the other hand, the development of the unconventional gas-shale gas in the United States has greatly shocked the global revolution towards low-carbon, the impact of which is studying by other countries. In order to complete the transition gradually to alternative and main energy from the supplementary energy in this competition, new energies have to improve their competitiveness in the market, and struggle for a higher market share of the energy consumption. For instance, the development of offshore wind power, an important project of Shanghai, is facing a harsh competitive environment in scale development. For one thing, the investment and operating costs of this project are much higher than that of onshore wind power. Besides, the technology of super offshore wind turbine which reduces the cost effectively is not available in China. For another, there are problems such as grid security and stability in demand side. In addition, the difficulty of technology applied is going to increase as the application of the scale expands.

(3) Clean, low-carbon path of the world's energy supply and demand system has been profoundly influenced by the denuclearization process of Japan and Germany, and the prudent attitude of other European countries towards the nuclear power. In general, it is an indisputable fact that the development process of global nuclear power has been slowed down because of the prudence the countries around the world holds towards the development of nuclear power, which will undoubtedly provide great opportunities for new energy industries like wind, solar and geothermal to accelerate the development.

(4) The industrial restructuring of Shanghai should keep pace with the international trend and play its own advantages. Shanghai was the first to make a demonstration and industrialization on manufacturing of power equipment, integration of photovoltaic systems, smart grid and battery technology of energy storage. Shanghai shall not only expand the scale of the utilization of renewable energy according to its own conditions, but also, on basis of that, develop industries such as equipment manufacturing, key technology integration and development of derivative service model.

iv. The development of Shanghai's renewable energy is requested to accelerate to cater for the negotiations on international climate change, the domestic energy conservation and emission reduction. And the large-scale utilization of renewable energy is the target of low-carbon transformation, construction of ecological civilization and the road of sustainable development. Being the forefront of China's reform and opening up, Shanghai should explore and establish a series of

more effective policies to provide experience useful for the country's strategic decision-making.

(1) **With the appeal of the international community to reduce greenhouse gas emissions, the strategic energy aim of the countries around the world has been changed to limit the consumption of fossil energy, encourage energy conservation and the use of clean energy, accelerate the adjustment of energy structure, and carry out the development and utilization of new energy.** China hasn't made any claim on the certain number of reductions on greenhouse gas emission, but the constraint of carbon intensity has been listed in the "The 12th Five-Year Plan" as an official goal. Therefore, the development of renewable energy is regulated by *Renewable Energy Law* and assessed by "The 12th Five-Year Plan", rather than a compulsory policy driven by government and voluntarily obeyed in the market.

(2) **"The 12th Five-Year Plan" is a critical period when Shanghai puts forward "the leading role in four areas" and speeds up the construction of "four centers". The task of boosting the proportion of non-fossil energy is very significant, to achieve which the new mechanisms and physical innovation should be explored.** According to the "12th Five-Year Plan", Shanghai needs an increase of nearly 6 percentage points at the end of the fifth year. This is undoubtedly a big challenge for Shanghai. The low density and high price of Shanghai's New Energy, along with constraints of land, shoreline and other resources, have restricted the large-scale development of onshore wind power and its BIPV system are not favored of. In addition, the slower development of nuclear power makes it more difficult to apply for nuclear power and hydropower from other places. To achieve the goal of "The 12th Five-Year Plan" is more difficult for Shanghai. A new pattern of covering less land, three-dimensional, diversified and multi-agent development should be explored to seek further development. To promote new economic growth point, plenty of measures shall be taken: to reduce the huge cost by ways of cost sharing and risk diversification; to expand space through the network and intensive of land; to serve for the development of more industries by means of the multi-level systems and the exploration of new industry; to overcome the "crowding out" of industries.

Shanghai has been awarded a number of "leading city" titles in China and even in Asia for its contribution in the development and utilization of renewable energy sources such as offshore wind power and large-scale photovoltaic building. However, "Shanghai model" is a typical case of government-led and group operations. With its experience and disadvantages, "Shanghai model" is not only a typical case of the utilization of renewable energy in coastal areas of China even Asia, but also of designing system and exploiting market in exploring solutions to the insufficient of renewable energy demand. Shanghai should strengthen its development of offshore wind power and be the first to explore a better structure and system. As Shanghai continues to expand the scale of development and utilization, more efforts should be taken to promote the development strategic pillar industries such as large-scale offshore wind turbine manufacturing industry and offshore wind turbines equipped vessels manufacturing. Relying on the advantages of equipment manufacturing, Shanghai should take the leading position of the development of offshore wind power in Asia!

Climate Change and Environmental Protection: The Focus of Human Attention

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Global warming and climate change are important issues which affect the sustainable development of human civilization. Global warming has become the focus of attention in the international community, and caused widespread public concern. The 18th National Congress of the Communist Party of China came up with the concept of “beautiful China”, which made the environmental issues a social hot spot once again. Building an eco-civilized society has become an inevitable strategic choice for the Chinese modernization. Historical experiences showed that the impact of climate change on the development of human civilization was profound. The reasons included the unreasonable exploitation of natural resources by human beings and the periodic variations of the climatic conditions. Long-term researches on climate change contributed to our understanding of the current climate change and environmental issues. IPCC’s Fourth Assessment Report in 2007 declared that irrational greenhouse gas emission is the main reason of global warming for nearly half a century. Although the causes of global warming are still under discussion, more and more people have recognized the critical consequences of irrational economic activities to the rise of temperature. The opinion of having a reasonable control over the emission so as to slow down and adapt to the future warming has been gradually gaining consensus. The global warming problem and its solution involve not only natural sciences, but also political, economic, ecological, social, public health, historical and even ethical studies. Only by adopting the perspective of multi-disciplinary cooperation and strengthening inter-disciplinary collaboration and communication can we effectively understand and respond to numerous problems caused by climate change. The drastically changing climate has brought new crises and challenges to the development of Asia. Frequent occurrences of extreme weather and severe environmental situations have become the common concern of Asian countries and regions. We must take measures such as strengthening cooperation between countries and regions, carrying out dialogues and exchanges between governments, enterprises, social organizations and the general public, promoting multi-disciplinary participation and exploring new cooperative environmental governing modes, to deal with new challenges brought by the current climate change to human development.

I. Climate Change: Past and Present

Throughout history, climate change has greatly influenced the progress of human civilization. Ancient Greek, Mycenaean, Palmyran, Ancient Greenlandic and Mayan cultures all vanished in

drastic changes of the climate¹. While people's inappropriate social and economic activities inflicted considerable damages on the environment and thus should be held responsible, the periodic variations of the natural environment also had a notable role to play. According to researches on the climate change in China's history, several periods of temperature rise or fall had occurred, exerting profound impact on the advance of Chinese culture. Back in the 1970s, the famous meteorologist Zhu Kezhen studied such phenomena and drew out the climate change curve based on numerous data². He and other researchers adopted proxy signals as ice cores, annual rings, fossil pollen, lake sediments and historical documents to build a curve that covered the changes of two thousand years. The researches showed that in China's history, temperatures of the Medieval Warm Period (900-1300) might be similar to that of the 20th century, while the Ming & Qing Dynasties Little Ice Age (1550-1850) featured temperatures that were 1.0-1.5°C lower. In the light of China's records, the cyclical fluctuations of temperature can be regarded as a normal state.

The fluctuation of temperature has a significant influence on the human society. In recent years, global warming has caught plenty of attention, so did people become more attentive to the effect of climate change. Climate change not only affected the natural environment, but also, via redistribution of precipitation and heat, led to alternation in farming schemes which would largely sway the political, economic, social, and cultural aspects back in the agricultural age. This topic, however, has seldom been touched upon in previous studies of humanities and social sciences. Hong Kong scholar David D. Zhang revealed that temperature changes were closely related to population decline, wars, and dynasty cycles³. In periods of warm temperatures, abundant water and heat resources facilitated agricultural production and guaranteed grain supply, creating a relatively stable political condition. The Western and Eastern Han Dynasties, Sui and Tang Dynasties enjoyed long-term stability probably due to the fairly warm temperatures at that time. A large number of wars in ancient China were between Nomads of the North and residents of Central Plains. In times of cold weather, the agricultural and pastoral boundary inevitably moved south. Water and heat on northern grasslands were not enough to support nomadic living, so the Nomads migrated southwards to seek for new pastures, which might cause conflicts with the farming society and even give rise to wars. The production and price of grain were also markedly affected by temperature change. The traditional peasant wars in Chinese history resulted not only from the imperial court's corruption and tyranny, but also directly from the shortage of food. Cold weather or temperature ups and downs often brought about climate disorders and seriously hindered the traditional agriculture that lived at the mercy of the elements. A direct consequence would be a shortfall in food supply, which commonly touched off a war. Before the demographic transition, population growth had been gravely slowed down by wars, plagues and famines. Besides, Malthus' "positive checks" repeatedly took place in ancient China, reducing the size of population by a great

¹ Hinsch, Bret. "Climatic Change and History in China." Collections of Essays on Chinese Historical Geography No.6 (2003). Translated by LAN Yong etc.

² Zhu, Kezhen. "Tentative Research on the Climate Change in China's 5000 Years History." Science China No.2 (1973)

³ D. D. Zhang et al. "Climate Change and Large-scale Human Population Collapses in the Pre-Industrial Era." Global Ecology and Biogeography (2010): 1-12.

D. D. Zhang et al. "Global Climate Change, War, and Population Decline in Recent Human History." PNAS No. 49 (2007).

deal. As stated by David D. Zhang, the population collapses in history were in accordance with warfare and replacement of dynasties, which meanwhile coincide with the temperature curve and fall in periods of cold weather and temperature upheavals.

The periodic variations of climate in China's history affected the environment, and also had a major impact on grain price fluctuations, population collapses, outbreaks of wars, replacement of dynasties and even shifts of civilization centers. Times of warmth showed population increase, stability, and prosperity. When temperatures fell, natural disasters came about more frequently, hampering economic development and social steadiness. Though the mechanism of how climate change influences the human world remains uncertain, these impacts have proved remarkable, even decisive to our social progress.

The above cross-studies involving meteorology and humanities as history, demography and politics have come to conclusions that went contrary to traditional academic perspectives. They actually provided sort of an optimistic prospect for researches on global warming. At least there are two points against previous opinions regarding global warming. Firstly, temperature change comes in cycles; alternate cold and warm weathers are nothing but normal. After nearly 500 years of Ming & Qing Dynasties Little Ice Age, the constant rise of temperature in the 20th century might just belong to a new cycle. Secondly, warming does not necessarily indicate unpleasant deeds, for in history warm periods were often favoured with better development, while disasters, wars, overthrows of dynasties and population collapses mostly occurred in cold years.

By studying historical data we recognized the other side of the global warming issue. Meanwhile, we must be aware that the warming process starting from the 20th century differs from that in history. Extensive use of fossil fuels in this industrial era has led to environmental problems that wouldn't have existed in the farming age. Industrialization separated man from nature. People stand opposite nature and try to control nature rather than depending on it wholeheartedly. The industrial civilization brought about unprecedented changes to the natural environment; therefore the interaction between man and earth in the modern world varies from that relationship back in the agriculture age.

Global warming is a highly controversial topic from the first. Some questioned the existence of the concept, yet more attention is drawn to the dispute that how human activities such as carbon emissions have pushed the progress of warming. To find out the trend and speed of temperature changes throughout history, researchers tried to set up variation sequences based on proxy data and computing models. Different meteorologists came up with various results. According to the sequence built by M. E. Mann, northern hemisphere temperatures had displayed gradual decreases during the past millennium. The process didn't stop until the 20th century when temperatures began turning up abruptly¹. Mann and his colleagues attempted to prove the oddness of recent decades' temperature rise, and the results were accepted by the IPCC Third Assessment Report "Climate Change 2001". Nevertheless, there must be flaws caused by using proxy data. Mann's temperature curve encountered some doubts as the 800-1300 Medieval Warm Period and 1300-1900 Little Ice Age (in China's

¹ Mann M E, Bradley R S, Hughes M K. "Global-Scale Temperature Patterns and Climate Forcing over the Past Six Centuries." *Nature* 392 (1998): 779-782.

case, Tang & Song Dynasties Medieval Warm Period and Ming & Qing Dynasties Little Ice Age respectively) were not present in his pattern. After examining 139 ancient climate sequences, W. Soon verified the existence of MWP and LIA, and confirmed that the temperature change in the 20th century was not so drastic as Mann indicated¹. A growing number of researchers have been tracking the sizes of glaciers and drilling deep into the earth's surface to measure temperatures of different ancient periods. Thus the fact of global warming in the last century has been proved to a greater extent. In addition, a series of environmental changes concerning icebergs, frozen soil, snow cover, polar ice, animals and plants suggest that global warming in the 20th century is an indisputable fact, and the last quarter of the last century witnessed probably the fastest boost of temperature in a thousand years². Warm winters and extreme high-temperature summers followed by global warming are absolutely not simple records in scientific studies. The general public has been subjected to those situations and became willing to accept the idea of global warming when facing frequent extreme high-temperature events. What's more, mass media is promoting the issue, turning it into a general concern. As many scientists believe, global warming is a matter of fact that admits of no doubt.

Besides the question of whether the earth is actually becoming warmer, there are more disputes over the real cause of global warming. The core of this controversy is whether global warming is the result of natural changes or a man-made process, and to what extent global warming is triggered by each of these factors. In fact, in the age of agriculture, temperatures were also constantly changing as affected by solar activities, volcanoes, ocean currents, ENSO, etc. Admittedly, modern industrial developments, widespread use of mineral fuels and huge emissions of greenhouse gases all have new effects on temperature changes, but natural factors like solar activities are still important contributors. With regard to this problem, due to the uncertainties of research data in the field of natural sciences, the scientific community has always been in dispute on whether human activities are the primary cause of global warming.

In recent years, however, more and more scientists tend to recognize human activities as the dominating impact on global warming, despite that natural factors such as solar activities still exert their effects. In particular, after the Intergovernmental Panel on Climate Change (IPCC) published the fourth report on climate change in 2007, the scientific community has gradually achieved the consensus that human activities are the main cause of global warming, although there remains some disagreement. The reports on climate change published by IPCC also reflected the modification of international community's understandings on climate change. Since 1985, IPCC has published four research reports on climate change. In these reports, IPCC increasingly confirms human activities' major role in climate change. The first report published in 1985 asserted that global warming resulted from the co-effect of human activities and natural fluctuations; the second report concluded that many issues regarding the global warming issue still needed further study; by 2001 when IPCC published

¹ Soon W, Baliunas S, Idso C, et al. "Reconstructing Climatic and Environmental Changes of the Past 1000 Years: Reappraisal." *Energy and Environment*, 14(2/3) (2003): 233–296.

² Wang, Shaowu et al. "Latest Advances in Studies of the Global Temperature Variations for the Last Millennium." *Advances in Climate Change Research* No.1 (2007).

the third report, it is claimed clearly that human activities accounted for the majority (66%) cause of global warming; the fourth report further clarified that global warming was most likely (90%) to be caused by human activities¹. It is predicted that by 2100, global temperature will rise by 1.4-5.8°C, which is mainly generated by the large amount of greenhouse gas emissions from industrial activities. According to the research data of IPCC, since 1750 the concentration of carbon dioxide in atmosphere increased from about 280 ml/m³ before industrialization to 379 ml/m³ in 2005. At the same time, the concentration of methane increased from about 715 × 10⁻³ ml/m³ to 1774 × 10⁻³ ml/m³, and the concentration of nitrous oxide, from about 270 × 10⁻³ ml/m³ to 319 × 10⁻³ ml/m³. The rapid concentration of various greenhouse gases has led to the rise of global temperature.

In view of the current process of rising temperature, deep analysis is still needed to study the respective roles played by climate changing factors resulting from human activities and climate variability factors resulting from natural variation. In fact, the disputes over global warming are not alone prompted by the different methodologies adopted in meteorological studies. Greater divergence of views arises from incompatible political positions, economic interests, national priorities, media directions and even disparities in religions and cultures.

..... There would inevitably be controversy rising from different stances of interest instead of hard facts, sometimes even leading to entirely distinct interpretations of the same data. Far from a merely scientific issue, the climate issue involves such fields as politics, diplomacy, economics and social problems. Therefore, further research on and discussions over the climate issue relies not only on the improvement of air temperature data sampling and modeling development on the part of meteorologists themselves to explore new temperature parameters like precipitation data in ancient times but also on multi-disciplinary and cross-fields research cooperation over a long period of time, thus getting close to accurate interpretation of the climate change issue and coming to rational response to emergencies.

II. The environment crisis facing Asia in the midst of the global climate change

As a vastly populated continent with its densely populated coastal areas, Asia is confronted with ever more severe threats from the environment in the midst of the dramatic climate change on the global scale. Characterized by global warming, the climate change would result in serious ecological and environmental crisis for Asia in the following aspects.

1. Water shortage. The global warming would possibly give rise to more prominent contradiction between water supply and demand in many Asian countries, which might trigger international dispute. It is estimated that with the rise of one centigrade in the eastern part of Asia, the demand for agricultural irrigation would increase by more than six to ten percent. With a rise of 3 centigrade in temperature, the Himalayas--the origin of many major rivers in south Asia, south east Asia and the southern part of China would be greatly threatened. The thaw of Qinghai-Tibet Plateau would bring about immeasurable consequences to the whole ecological system in Asia. The global climate change would expand the areas suffering drought in China. With the density of carbon dioxide doubled, there would

¹ Qin, Dahe. "The Changes of Climate Bring Challenges to Economy, Society And Sustainable Development of Our Country." *Foreign Affairs Review* No.4 (2007).

be an increase of 1.5 Centigrade in temperature and an expansion of 188 thousand square kilometers in drought areas in China. In the years of severe drought, the water shortage in the north eastern and north western areas in China would be greatly aggravated, with the water resources situation dangling on the brink of collapse. Ever since the year of 1950, the six major rivers in our country have suffered a decrease of the volume of runoff with Haihe topping the list decreasing at an annual rate of 3.66 percent. China would see a dramatic decline in the number of glacier, tundra soil and snow cover and mountain glacier's continued shrinking. Presumably, the western area of China would witness a disappearance of 7.2 percent of glacier till the year 2050. The rising temperature would make the areas in the middle latitude as well as the inland area of Asia suffer more severe drought. Recent years has seen an aggravating desertification in the north western part of China. Characterized by being humid and semi-humid, the north eastern part of China has suffered a sustained drainage of precipitation since the 1990s with the water level of Songhua River and Heilong River hitting record lows for several times, which demonstrates the severe threat posed by the drought issue to the agricultural production in the north eastern part of China.

2. Threats posed by extreme climate. With the ever rising temperature, the past few years has seen greater occurrences of such extreme weather as high temperature, cold current, downpour, flood and typhoon. There has been apparently more frequency as well as greater intensity in terms of extreme weather events in Asia against the backdrop of global warming. There have been constant incidents typified by forest fire because of high temperature and dry heat in different areas. More frequent happenings of extreme weather would pose greater threat to the possibility of climate disaster. The global warming, followed by atmospheric current, would trigger such frequent incidents of extreme weather as typhoon. It's estimated that the occurrences of dramatic meteorological disaster in 1990s were more than 5 times those of 1950s. People got the most direct experience of extremely high temperature. As was demonstrated in the IPCC assessment report in 1997, the past 50 years has seen greater frequency of hot days, hot nights and hot wave weather in the most parts of the land area as well as the wider range that suffered more intense drought lasting for a longer duration. Besides, the tropical cyclone has increased in intensity, which projected ever more likelihood of extreme climate events in this century. The hot wave might result directly in the increase of fatality rate as well as the occurrence of heart disease and respiratory disease. The survey taken in Shanghai shows that with the temperature climbing over 34 Centigrade in summer, there's a dramatic rising trend in the fatality rate. More frequent and intense occurrences of hot wave events would aggravate the disease and death brought about by the extreme climate with its threats more conspicuously seen in the elderly, children and the invalid.

3. Rising sea level. The rising temperature would possibly lead to the glacier thawing in the polar parts of the earth as well as on the Qinghai-Tibet Plateau. Besides, that might be followed by the expansion of the sea when heated, giving rise to the rising sea level. Over the past 50 years, the sea level has risen at an annual rate of 110 to 215 millimeters. The trend might continue for quite a long period in the future and is expected to increase by 12 to 50 centimeters altogether in 2050 with the global warming showing greater momentum. The rising sea level would exert direct impact on the densely-populated super delta area of Asia including the Yangtze River, the Yellow River and the Pearl River Delta in China, Osaka of Japan as well as eastern coastal areas, the Red River Delta in the northern part

of Vietnam and the Ganges of Bengal as well as Brahmaputra river delta, rendering grave consequences to the sustenance and development of Asia. The public announcements having been released on the sea level ever since 2000 in our country have shown that the record data which has consistently been refreshed give full expression to the fact that the sea level has risen at a higher speed than that of the global average. During the last 30 years, the coastal sea level in our country has risen by 90mm with an average annual rate of 2.6mm, faster than the global annual speed of 1.8mm. It hit a record high in 2008 and is estimated to rise by another 130mm in the coming 30 years. But specifically, the rising rate in the southern part would lead that in the northern area. The most vulnerable areas to such influence include the Yangtze River Delta, the Pearl River Delta, the Yellow River Delta and the coastal areas of the municipality of Tianjin. Among the abovementioned, the Pearl River Delta sea level would be expected to rise by 30cm by 2030, with the land area of 1153 square kilometers at the risk of being engulfed. The most greatly threatened areas include the city of Guangzhou, Zhuhai and Foshan. But without the defense facilities against sea tide, the land area at the stake of being flooded could reach 5545.69 square kilometers, extending to the city of Zhongshan and Dongwan. Additionally, the rising sea level would also result in more happenings of such extreme weather events as storm tide and higher speed of the occurrence of salt tide as well as the soil salinization, further undermining the agriculture, forestry and fishery industry in coastal areas and the water supply system of cities.

4. Changes in climatic zones and species changes. Rising temperatures make the fertile Asia in low latitudes lack of water so that the land is difficult to farming. And middle and high latitudes become suitable for farming due to the increase in heat. Climate change will result in the worldwide climatic change and economic restructuring, making the future full of uncertainty. Generally, the vegetation zones will move northward in the global warming process. For our country, temperatures will make the isotherms northward, expand warm temperate and temperate areas of the northeast region and narrow the cold temperate or even out of the Northeast. At the same time, in terms of precipitation, northeast China's forest area will be reduced, grassland area will expand since the evaporation and the area of the semi-humid and semi-arid is increasing and moist area is reduced. Higher temperatures and intensified drought may lead to desertification in North China and Northeast Liaohe basin. Qinghai-Tibet Plateau alpine meadow area will be significantly reduced. Hydrothermal conditions continuously strengthened make the South Mountain forest northward expansion. Northern cold temperate coniferous forest will react strongly to global warming and to a large extent moved north into the tundra. The south of it will give place to the cool temperate deciduous broad-leaved forest, such as birch and davidia-na. However, vegetation migration rate is lower than the rate of climate warming. In the process of natural level northward and vertical rising of vegetation zone, many species distribute at a slower speed than the climate change which make species completely extinct or partially extinct. Some species evolve into a new species in the process of adapting to the environment. Global warming will make the climate zone and vegetation to large-scale adjustments on a global scale. Although some areas may become suitable for farming due to the improved hydrothermal conditions, large-scale adjustment makes the future full of uncertainty.

5. Threat of infectious diseases. The rise in temperature may pose a threat to human health and one of the most serious security threats come from infectious diseases. Climate change will have great impact on the process of spread of infectious diseases, including a direct impact on the propagation

of pathogenic mature and media and changing the media or the host habitat. The temperature is a key factor in the spread of certain infectious diseases, especially with the mosquito-borne disease, such as Ross River virus, malaria and dengue fever. As the Earth's temperature rises, the mosquitoes will be transferred to areas not suitable for their lives and higher latitudes. And disease transmission season may be extended. From Rwanda report, the annual average temperature rises 1 ° C, and the incidence of malaria in the region rose 33.7% [Stone R. of global warming on human health, "International Journal of parasites branch, 1995,22 (5) :201-202.] Research group led by the Netherlands Pim Martens designed a computer model of malaria transmission, predicting that if in the 21st century, the global average temperature rises 3 ° C and Anopheles distribution area expand ,it will lead to 50 to 80 million new cases of malaria per year. The World Health Organization estimates that 15.4 million deaths are caused by side effects of global warming, especially malaria. By 2020, this figure may nearly double. In addition, the rise of sea temperature and sea level caused by climate change may cause an increased incidence of waterborne infectious and toxic diseases (cholera and shellfish poisoning). Global climate change is likely to change the distribution of infectious diseases and result in wider dissemination, making more people get infected. For many developing countries in Asia, the incidence of infectious diseases may threaten the fragile public health system, putting the social stability at risk and causing serious economic and social consequences.

III. The exploration of a cooperative environment treatment model

1. Making concerted efforts to tackle the issue of climate change in Asia by enhancing international and regional cooperation. Climate change, an international and cross-regional issue, has rendered whichever country or region confronted with it unable to solve the thorny problem without international or regional cooperation. Essentially, the issue of climate change is more of the issue of development than that of meteorology. It involves various aspects of interest among different countries including politics, economics, technology and national defence. The responsive measures to global climate change involve the gradual measure and the adaptable measure. The gradual measure focuses mainly on the curb and reduction of the emission of such warm house gases as carbon dioxide. However, the green house gases have the attributes of typical public goods all over the world, namely the non-competitiveness in consumption and the non-exclusiveness in exploitation. The lack of a world government high above sovereign nations contributes to the undersupply and free-riding problem in public goods on a global scale. Actually, to curb the emission of green house gases does detriment to the economic development for the majority of countries at least in the short term. But in the long run, there's been a unanimous agreement on the significance of cutting down on the emission of carbon dioxide in the hope of protecting environment and averting the potential catastrophe that might be brought about by climate change. But in the short term, there's no country willing to slow down the economic advancement. During the reign of George W Bush, the refusal to sign the Kyoto Protocol reflected America's reluctance to see its economic development hindered by the carbon emission issue. However, most of the developing countries, still in the process of industrialization, depend heavily on the relatively cheap fossil fuels as motive force for their economic development. Besides, the lack of sufficient technology to exploit green energy renders them hardly possible to

undertake the responsibility of carbon emission. The emission reduction of carbon dioxide, as public goods shared on the global scale, could hardly be effective by the enforcement of reduction measures of several countries. What's needed in this respect is to enhance extensive cooperation with protecting the common interest of human beings as the basic point. In an effort to seek for effective measures to curb global warming, INC was set up by the UN in December, 1990, responsible for formulating international conventions on controlling global warming. Ever since then, the issues of global warming and emission reduction of carbon dioxide have arrested increasingly more attention from international communities.

In June, 1992, the United Nations Framework Convention on Climate Change made clear the long-term goal of stabilizing the density of green house gases as well as the basic principles of human response to climate change. The Kyoto Protocol established in December, 1997 prescribed the obligation of quantitative emission reduction by way of introducing three major market-based emission reduction mechanisms. The Bali Roadmap laid down during the Bali Conference in December 2007 stipulated that new pact on emission reduction would be reached in 2009 with adherence to the principles prescribed in conventions and protocols. In the 15th session of the UN Framework Convention on Climate Change for contracting parties, held in the capital city of Copenhagen, Denmark in December, 2009, 192 countries present in the conference discussed over the follow-up plan at the expiration of the first phase of pledge drawn up in the Kyoto Protocol. The slowing down of the process of global warming is a matter of realistic decision that involves the equality and efficiency of the arrangement of public resources on a global scale. Any decision could possibly have an ever-lasting and profound influence on the economic development. Therefore, every government may inevitably find itself caught in a dilemma of coordinating the short-term economic growth and the environmental protection in the process of making decisions about curbing global warming in reality. The governments tend to look for transferring their obligation of emission reduction to other countries by way of free riding at no expense of their own development, which has greatly hindered the negotiation on international climate and rendered it more eventful.

Anthony Giddens, a renowned sociologist believes that, in the face of the nagging climate change, we the human beings is facing a dilemma: "Despite the risks climate changes brings is dangerous, yet it is tangible, direct, and visible. Due to this preexisting condition, many people will definitely not stand by and do nothing. This situation, however, calls for no slow moves. Rather than it goes severe, and serious, we need to take concrete action." To cope with the climate change, eliminating carbon exhaustion will bring us long-term benefit, whereas the cost of which is that it damages current economic development.

Each country starts from its own situation to implement carbon emission reduction and bargain on it with global partners. This needs cooperation between various countries to promote mutual trust and reach a dynamic balance in order to cope with climate change. Since developed countries have enjoyed the fruit of industrialization earlier than the developing ones, their carbon emissions are, at the same times, much more than the later ones. So in term of reactions, the developed countries must shoulder more responsibilities and involve more capitals into research and environmental-protection techniques, while at the same time release the technology transformation to the developing countries.

China as a developing country, economic development is the most important task, and is in the

process of modernization, it is difficult to accept emission reduction obligations. But we must also recognize that China's total carbon emissions over the United States to become the largest country of the world's carbon emissions. Excessive use of fossil fuels is causing considerable harm to our environment. Therefore, to develop clean energy technologies to reduce carbon emissions, and change the structure of economic development are in line with the long-term interests of China's economic development. In line with the principle of "mutual benefit and win-win, pragmatic and effective" actively participate in and promote international cooperation to tackle global warming, played a constructive role. China has long been actively participate in and support activities under the UNFCCC and the Kyoto Protocol framework, efforts to promote the effective implementation of the UNFCCC and the Kyoto Protocol and fulfill our country under the Climate Convention and the Kyoto Protocol "obligations.

Asian countries should actively seek regional cooperation, strengthen exchanges between countries and regions, in response to the issue of global warming to enhance mutual trust and strengthen cooperation and jointly cope with climate change in Asia, strengthen Asia's voice in the world.

2. Discoveries between different interest groups, including central government, local government, businesses, people, social organizations and other cooperative environmental governance mode. At present, China mainly taken on the issue of environmental governance means of administrative control, the government is the main driving force of environmental protection, to explore effective interaction and cooperation between the government and enterprises, people, social organizations, contributes to the realization of energy saving implementation of the policy and the environment. The local government has a very important role in the response to climate change, local governments in the development and implementation of climate change legislation and policy functions should play a greater initiative and creativity, effectively guide the transformation of the local economy, the development of the tertiary industry. Central government domestic provinces and cities to promote the basic principle of "common but differentiated responsibilities" to encourage state-of-the-art place to go further, faster on the issue of climate change, is also a place between the technology and the transfer of funds to lay the foundation. Enterprises still lack the motivation to control greenhouse gas emissions, reduce pollution for most businesses are still put into high and low returns. Countries should focus on climate change considerations into long-term planning of enterprises, strengthen risk management in financial and technical guide and help enterprises of all types. At the same time, by encouraging measures to guide enterprises to a positive commitment to social responsibility on the issue of climate change. The business to include not only the inclusion of the state-owned enterprises should be the majority of small and medium-sized private enterprises. Enterprises in accordance with the government requires the ability to bear the effects of climate change on their own assessment, and strengthen risk management, in order to achieve the sustainable development of climate change not only the responsibility of the local government will have an impact, will have a huge impact on the responsibilities of enterprises. Public and social organizations and other social forces in the growth stage, play an increasingly important role in addressing climate change and environmental protection process, to change one's way of life, and promote low carbon living. To address climate change, we should strengthen the cooperation and communication between the government, business, and civil society organizations play different subjects. We must adopt spontaneous force in the local release of

the ultimate solution to the problem of climate change.

3. To carry out multi-disciplinary and collaborative research. Climate change related to the environment, population, energy, economic, political and other disciplines, they are closely related to each other, reinforce each other. Strict discipline barriers make any disciplinary force incompetent in handling incentives diverse and complex environmental issues. This situation is seriously affecting the correct understanding of the relationship of the evolution of human society and ecological environment, so that we in the growing influence of extensive and in-depth discussion of global change is difficult to get a real right to speak, can not effectively protect the basic rights and interests of developing countries. Any single discipline can not be an effective solution to these problems, and require a multidisciplinary, especially cooperation between the natural sciences and the humanities and social sciences research, collaborative research.

From an economic point of view, global warming is essentially a development issue. With economics research perspectives on fossil fuels damage to the environment should pay, and how through a carbon tax, to promote the spread of economic restructuring and energy-saving technologies. The issue of global warming is a political issue, the countries to address climate change negotiations is based on the interests of their respective countries on the political tug-of-war, political science research methods can help our country in international negotiations on climate issues, to increase international voice. Demographic factors have an important impact in reducing carbon emissions, population size, population structure, consumption patterns and lifestyles, from the perspective of public consumption to reduce carbon emissions has a positive meaning, on the issue of climate change research, demography participation it is very necessary. Ancient China has a rich history of literature, which records on the meteorological data is unique in the world, organized into a database, you can create historical periods of climate change sequence of historical climatic proxy data. The rich genealogical information is also provided for the establishment of a thousand years of demographic change sequence is extremely valuable information. Established in accordance with the genealogy Millennium sequence of demographic changes, can be used to detect the impact of climate change on human development. Guide public opinion, the mass media play an important role in the development of low-carbon economy, the promotion of low-carbon lifestyle, establish the concept of environmental protection of the public and so can not do without the participation of the media. In addition, the impact of climate warming on the ecological environment as well as infectious diseases, environmental science and public health experts and scholars to participate. Due to the issue of global warming it is very complicated, and the impact of human civilization is extremely broad and deep, which requires cooperation from the natural sciences, the social sciences to the humanities multidisciplinary in order to effectively tackle climate change.

IV. The Proposed Policy on the Development of Shanghai

In fact, although the scientists whether human activities is a major factor of global warming caused by the proposition that there are differences, but they are at least on the issue of limiting carbon emissions can be achieved consensus. No one can deny that a lot of greenhouse gas emissions since the industrial revolution human society and fact this gives causing serious damage to the environment,

and thus whether it is from the point of view of environmental protection or from the point of view of mitigation of climate warming, reduce carbon emissions, the development of clean energy, changes in production methods are imperative. As a leading engine of China's economic development and modernization, in response to climate warming, reduce carbon emissions and protecting the environment should be at the national forefront. Specific recommendations on the development of Shanghai as follows:

1. To promote the development of multi-disciplinary cooperation from a long period of time to explore the climate change the laws of nature and human interaction with the environment. Integrated discipline advantages of Shanghai Universities, the establishment of the the Shanghai Global Climate Change Research Center, the problem of global climate research to promote cooperation in meteorology, environmental science, economics, political science, demography, history, public health and other disciplines, to obtain independent research results, to fight global warming problem for China and Shanghai international right to speak.

2. We should play the enthusiasm of enterprises, individuals, social groups in addressing climate change and environmental issues. From the financial, economic, social and other aspects to create conducive enterprises to consciously participate in the mechanism to reduce carbon emissions, reduce the cost of enterprises to participate in environmental protection. For environmental protection and energy saving technology, taxation, credit, etc. to give support and encouragement severe polluting enterprises should strengthen restrictions to intensify eliminated. Reduce the taxation of energy saving products, in order to facilitate the promotion of environmentally friendly products. Guide the low-carbon lifestyle of the people, step up publicity efforts. We should promote the community environmental action to support social organizations and civil society.

3. We should focus on strengthening air pollution control. The Shanghai municipal government has implemented a series of measures to curb urban air pollution including coal-fired stove clean energy transformation, transport dust control, management of straw burning, motor vehicle pollution control, and achieved certain results. However, air pollution problems facing Shanghai is still grim, the total emissions are still rising. For Shanghai, the main air pollution from vehicle exhausts emissions. The popularity of private cars in the cause of urban traffic congestion at the same time, it also brings serious air pollution.

The suggestion for air pollution problems are as follows:

1. We should build up additional major business centers and residents interval Bus Rapid Transit (BRT, Bus Rapid Transit). Strengthen the construction of subway, bus and other public transport system in the People's Square, Xujiahui, Zhongshan Park, wujiaochang, Lujiazui and other major business centers and residents interval, set up special bus lanes, driving fast, large bus, and increase the fast underground , both of which stop at only the main site, such as to set up a station for an average of 5 km), the connection of several commercial center with major residential areas, greatly improve the flow of people and access speed, this can effectively reduce reliance on cars, buses should also be used in all of the electricity or natural gas engine. Between major stations set the free bicycles point bus to provide short-haul barging.

2. Supporting the first point, it is recommended to follow the example of the practice of the old City of London, the implementation of the non-public PDI city center paid into the system.

We should issue a regulation that provides the “non-public delivery of the vehicle into the downtown area within the inner ring hourly, and the progressive fee is to reduce downtown traffic flow, effectively improve urban air quality, reducing PM2.5 value.

3. We have to improve fuel standards, fuel quality. Shanghai practiced fuel standards too low, even lower than the standard, does not match the pole with the positioning of the international metropolis of Shanghai. Shanghai No. 97 gasoline is equivalent to only 95 of the German standard gasoline exacerbate exhaust pollution caused by poor fuel quality is imperative to improve fuel standards, and imminent potential line.

4. We should strengthen the solid waste pollution control. Strengthen the comprehensive management of waste, landfill treatment is a short-sighted, and the potential hazards posed by. Garbage buried in the suburbs of Shanghai convenient and low cost, but is bound to groundwater, soil, vegetation will pose a serious threat. Shanghai city scale will continue to expand, the city expanded to the surrounding areas, as the outskirts of the landfill, the future is likely to become the city into residential, when we going to Shanghai People living in the garbage dump it? In addition, the waste classification should be implemented as soon as possible. Waste classification can reduce the cost of waste recycling, reduce environmental pollution. Is still a need to strengthen the publicity of waste classification, and enhance the public awareness of waste classification, at the same time improve the garbage sorting facility.

Shanghai walks in the forefront of China’s industrialization, London and other Western cities in the industrialization process is facing serious environmental degradation, and walked forward the depths of the crisis. Regardless of the warming due to man-made greenhouse gas emissions or nature’s own variation of the environment we live in is getting worse is there for all to see, to strengthen the comprehensive management of environmental issues, improve corporate environmental responsibility, and enhance people’s awareness of environmental protection, and promote government, effective cooperation between businesses, people, social groups, and jointly create clear water and blue sky beautiful!



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