

The Rising of Modern China: Comprehensive National Power and Grand Strategy¹

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Abstract

The art of war is of vital importance to the State. It is a matter of life and death, a road either to safety or to ruin. Hence it is a subject of inquiry which can on no account be neglected. The art of war, then, is governed by five constant factors, to be taken into account in one's deliberations, when seeking to determine the conditions obtained in the field. These are: (1) The Moral Law; (2) Heaven; (3) Earth; (4) The Commander; (5) Method and discipline.

---- Sun Tze on *the Art of War*

Entering into the 21st century, economic globalization has not only been accelerating the process of the integration of the world economy but also competition among/between countries, especially that among big powers. International competition manifests itself mainly in the dynamic changes in the strategic resources of different countries and the open competition in the comprehensive national power (Zonghe Guoli). They often come into conflict with one another and are locked in contention while being complexly interdependent and interconnected. In the development process, which is quite out of balance, some countries have grown in national power while others are losing relatively. It is those changes that have brought about significant changes to the pattern of the

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world.

The status (or position) of a country in the international community is in essence associated with the rise and fall of its national power, the increase and decrease of its strategic resources. This has brought us to such issues as: what is the comprehensive national power (CNP)? What are strategic resources that make up CNP? What kinds of strategic resources are more important in the 21st century? What advantages and disadvantages do China enjoy in strategic resources vis-à-vis other great powers? Where China stands in the world with regard to CNP? Has it grown or lost in strength over the past 20 years? How is China's CNP changing as compared with the United States, Japan, India and Russia, which are closely associated with China's national interests and geopolitical strategy? How should China raise its CNP and how should it make full use of its advantage strategic resources and constantly improve its disadvantaged strategic resources? What are the objectives of China's grand strategy? How to put it into execution?

I. CNP and National Strategic Resources

1. Concept of CNP

By CNP, it generally means the sum total of the powers or strengths of a country in economy, military affairs, science & technology, education and resources and its influence (China Institute of Contemporary International Relations, 2000). More abstractly, it refers to the combination of all the powers possessed by a country for the survival and development of a sovereign state, including material and ideational ethos, and international influence as well (Huang Shuofeng, 1999). Foreign scholars usually use national power in its specific sense, that is, the strategic capabilities by which a sovereign state uses its overall resources to influence others (Ashley Telis et al, 2000). It is the most important indicator in measuring the basic national conditions and resources of a country, and a comprehensive indicator for the economic, political, military and technical powers of a country. Comparing the analysis of CNP by Chinese and foreign scholars as well, we can draw a conclusion as follows: CNP has a wider coverage, stressing comprehensiveness and all aspects, apparently including material strength, ideational ethos and international influence. But CNP stresses material strength or

command power although it does not ignore completely the importance of ideational ethos or soft power. The Klein equation, for instance, put the ideational factor in an important place in implementing the will to pursue national strategy. In sum, both CNP and national strategic resources focus on the study of grand strategy; the two concepts have no differences in essence and may be interchangeable.

But there is not yet a unified definition or method of computation with regard to CNP or national power of a country. Ashley Tellis (Ashley Tellis et al, 2000) defines national power as a product of the interaction of two components, that is, the capability of a country to command its economic innovation cycle at a given time and use such command power to form effective military capabilities and, in turn, to create a stable political environment, intensify the existing economic advantages and provide basic conditions for maintaining its strategic advantages and seek gains in the international system. In a word, CNP may be simply defined as the comprehensive capabilities of a country to pursue its strategic objectives by taking actions internationally and the core factors to the concept are strategic resources, strategic capabilities and strategic outcomes, with the strategic resources as the material base. This paper focuses on national strategic resources, with emphasis on tangible strategic resources or hard power. We will study intangible strategic resources or soft power in another paper.

We define national strategic resources as real and potential key resources available in realizing the strategic outcomes of a country. It reflects the abilities of a country in utilizing all kinds of resources worldwide and also reflects the country's CNP. Kenneth Waltz defines powers as the distribution of all kinds of capabilities. In fact, CNP are the distribution of the strategic resources of a country, being mobilized and utilized to realize the strategic objectives of a country. Generally speaking, CNP refers to the sum total of the strategic resources of a country while the strategic resources of a country refer to a certain kinds of strategic resources.

2. National Strategic Resources

Michael Porter lists five major resources, that is, physical resources, human resources, infrastructure, knowledge resources and capital resources (Michael Porter, 1990, 2000). Accordingly, we divide the national strategic resources into eight categories, with 23 indicators. Those indicators constitute CNP.

1) Economic Resources

We measure economic resources by GDP. It is the sum of the gross values added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Usually, there are two ways of measuring GDP. One is calculated by official or nominal exchange rate. This method often underestimates the economic power of developing countries but overestimates the economic power of developed countries; the other is calculated by the purchasing power parity (PPP). The international comparison project recommended by the World Bank and the IMF takes 1993 as the base and calculated the GNP of 118 countries and uses PPP to estimate the value of international dollar per capita GNP and per capita GDP.

Table 1: The Economic Resources of China, USA, India, Japan and Russia

(% in the World Total)

Country	1975	1980	1985	1990	1995	1998	2000
GDP calculated by PPP (one billion US dollar)							
China	212	414	821	1520	3080	3850	4966
India	266	441	683	1170	1740	2030	2432
Japan	598	1050	1490	2350	2910	2940	3354
Russia	—	—	—	1460	1050	948	1168
USA	1730	2880	3880	5620	7200	8000	9646
World's total	7623	13115	17955	26967	34730	37595	44506
% of GDP in world's total							
China	2.78	3.16	4.57	5.63	8.87	10.23	11.16
India	3.49	3.36	3.80	4.35	5.02	5.41	5.46
Japan	7.85	8.04	8.27	8.73	8.38	7.82	7.54
Russia	—	—	—	5.43	3.02	2.52	2.62
USA	22.71	21.96	21.60	20.85	20.73	21.29	21.64
Five in total	—	—	—	44.99	46.02	47.27	48.42

Note: Figures for 2000 are those of the Gross National Income (GNI).

Source: World Bank, *World Development Report 2001*, New York: Oxford University Press, 2001.

Table 2: Economic Growth Trend of the Five Countries

Country	GDP growth (1965-1999)	Per capita GDP growth (1965-1999)	Growth potential index	
			GDP	Per capita GDP
China	8.1	6.4	2.45	4.00
India	4.6	2.4	1.40	1.50
Japan	4.1	3.4	1.24	2.13
Russia	—	—	—	—
USA	3.0	2.0	0.91	1.25
World in total	3.3	1.6	1.00	1.00

Note: Growth potential index refers to the ratio of growth of all countries to the average growth in the world.

Source :World Bank, *World Development Indicator 2001*, Table 1.4, New York: Oxford University Press, 2001.

Table 3: Long-Term Economic Growth Trend of the Five Countries

Country	GDP (billion US dollars , 1998)			% in world's total		
	1998	2010	2020	1998	2010	2020
China	3850	9803	17057	10.23	17.66	22.20
India	2030	3482	5460	5.41	6.27	7.11
Japan	2940	4762	7116	7.82	8.58	9.27
Russia	948	1202	1466	2.52	2.17	1.90
USA	8000	11406	15329	21.29	20.55	19.96
World in total	37595	55505	76796	100.0	100.0	100.0

2) Human Capital

Human capital, especially the opportunities and capabilities of educating, is regarded as the decisive factor in the process of economic growth. Generally, human capital is expressed in the number of years of education received by a population. The more the number of years of education received, the more skillful the workers and the higher the labor productivity to stimulate economic growth. The rich human resources of developing countries are easier to absorb and use new technologies imported from the developed countries (Barro and Lee, 2000). The total human capitals of a country are expressed in two categories of major indicators: one is the number of people and the number of working-aged people, such as people aged 15-64; the other is human capital, which is expressed in the average number of years of education received by people over

15. 2The two categories of indicators constitute the total human capital of a country, which is defined as the number of working-aged people multiplied by the average number of years of education received, or defined as the multiplication of labor forces and the average number of years of education received by the population. Labor forces conform to the definition by the International Labor Organization, that is, people of economic vitality. They include people who provide labor service to producers and services at a given stage. They include both people with jobs and people without. The estimated figure of females does not have international comparability, because in many developing countries, most of the female laborers help with farm work or engage in labor without pay in family businesses. In general, labor forces includes soldiers, unemployed people and people who have found jobs sometimes before, but not include family workers or other service workers without pay and people working in non-regular departments.

² The last indicator is drawn from the global education databank of Barro & Lee of the Harvard University. Data for China come from the national population census (NBS, 1982, 1990, 2000).

Table 4: Human Capital of the Five Countries (% in World's Total)

Country	1975	1980	1985	1990	1995	1999
% of 15-64 year-old people in the world's total						
China	22.2	22.6	23.3	23.6	23.2	22.4
India	14.9	15.2	15.4	15.7	15.9	16.2
Japan	3.27	3.03	2.83	2.67	2.48	2.30
Russia	3.93	3.65	3.35	3.09	2.81	2.69
USA	5.99	5.80	5.44	5.10	4.88	4.76
Five-country total	50.3	50.3	50.3	50.1	49.2	48.4
Average years of schooling						
China	4.38	4.61	4.94	5.51	6.08	7.11
India	2.70	3.27	3.64	4.10	4.52	5.06
Japan	7.78	8.51	8.74	8.96	9.23	9.47
Russia	9.27	9.23	9.77	10.5	9.77	10.0
USA	9.69	11.9	11.6	11.7	11.9	12.11
World average	5.54	5.92	6.17	6.43	6.44	6.66
Total human capital (one billion/person/year)						
China	2.25	2.70	3.35	4.17	4.95	6.00
India	0.934	1.29	1.62	2.06	2.52	3.08
Japan	0.59	0.67	0.72	0.77	0.804	0.819
Russia	0.844	0.874	0.951	1.04	0.964	1.02
USA	1.35	1.79	1.83	1.92	2.04	2.16
World's total	12.8	15.4	17.9	20.7	22.6	25.0
% in world's total						
China	17.5	17.6	18.7	20.2	21.9	24.0
India	7.27	8.40	9.06	9.98	11.1	12.3
Japan	4.60	4.36	4.01	3.73	3.55	3.27
Russia	6.57	5.69	5.30	5.05	4.26	4.06
USA	10.5	11.6	10.2	9.30	9.01	8.60
Five-country in total	46.5	47.7	47.2	48.2	49.8	52.2

3) Natural Resources

Usually, natural resources refer to the abundance, quality, reachability and costs of major natural resources. Natural resources are the necessary conditions for economic development, but they are limited or the conditions or upper limits for restricting economic growth. Meanwhile, natural resources are regressive in marginal gains, with relatively high ecological costs and external costs in their utilization. Besides, different resources play quite different in their roles during different stages of development, generally assuming a downward trend (in contrast, the roles of knowledge resources assume an upward trend). There are four major indicators of natural resources: (1) arable land including defined by FAO as land under temporary crop, temporary meadows for mowing or for pasture, land under market or kitchen gardens, etc., but land abandoned as a result of shifting cultivation is excluded; (2) annual fresh water withdrawals refer to total water withdrawal, not counting evaporation losses from storage basins. Withdrawals also include water from desalination plants in countries where they are a significant source; (3) commercial energy use referring to apparent consumption, which is equal to indigenous production plus imports and stock changes, minus exports and fuels supplied to ships and aircraft engaged in international transport; (4) electricity production measured at the terminals of all alternator sets in a station. In addition to hydropower, coal, oil, gas, and nuclear power generation, it covers generation by geothermal, solar, wind, and tide and wave energy, as well as that from combustible renewable and waste.

Table 5: Natural Resources of Five Countries (% in World's Total)

Country	1975	1980	1985	1990	1995	1997	1998
Electricity production							
China	3.15	3.82	4.43	5.54	7.86	8.39	8.20
India	1.33	1.46	1.89	2.47	3.17	3.34	3.47
Japan	7.35	6.99	6.87	7.25	7.45	7.42	7.29
Russia	—	9.82	9.91	9.23	6.52	6	5.81
USA	31.23	29.63	27.02	27.12	27.02	26.49	26.74
Five in total	—	51.72	50.12	51.61	52.02	51.64	51.54
Commercial energy use							
China	8.18	8.68	9.18	10.07	11.84	11.8	11.04
India	3.51	3.5	3.76	4.18	4.82	4.89	4.42
Japan	5.19	5.01	4.73	5.1	5.49	5.46	5.46
Russia	10.24	11.03	11.7	10.5	6.9	6.2	6.23
USA	27.98	26.17	22.94	22.37	23.06	22.93	23.35
Five in total	55.1	54.39	52.31	52.22	52.11	51.28	50.5
Farming land							
China	17.01	16.3	14.87	15.79	12.96	13.52	13.52
India	17.58	17.85	17.44	17.31	14.45	14.59	14.59
Japan	0.52	0.47	0.45	0.42	0.34	0.3	0.3
Russia	—	—	—	—	7.65	7.15	7.15
USA	12.51	12.28	12.2	11.08	8.62	8.88	8.88
Five in total	—	—	—	—	44.02	44.44	44.44
Freshwater withdrawals							
China	5.8	5.8	5.8	5.8	5.8	5.8	5.8
India	3.91	3.91	3.91	3.91	3.91	3.91	3.91
Japan	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Russia	9.22	9.22	9.22	9.22	9.22	9.22	9.22
USA	5.09	5.09	5.09	5.09	5.09	5.09	5.09
Five in total	24.9	24.9	24.9	24.9	24.9	24.9	24.9
Total natural resources							
China	8.54	8.65	8.57	9.30	9.62	9.88	9.64
India	6.58	6.68	6.75	6.97	6.59	6.68	6.60
Japan	3.49	3.34	3.23	3.41	3.54	—	3.48
Russia	—	—	—	—	7.57	5.59	7.10
USA	19.20	18.29	16.81	16.42	15.95	15.85	16.02
Five in total	—	—	—	—	43.26	—	42.84

Note: Total natural resources = all natural resources plus weight average (all being 25%)

4) Capital Resources

According to the definition given by Michael Porter, capital resources include three major indicators: (1) gross domestic investment, that is, the net changes of the spending on fixed assets plus inventory level in the economy of a country; (2) foreign direct investment (FDI), that is, the net inflows of investment to acquire a lasting management interest in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital, as shown in the balance of payments; (3) market capitalization (also known as market value), that is, the share price times the number of shares outstanding. It reflects the size of development of the financial market (porter, 1990). In this paper, we have converted domestic investment into international dollar and left the other two indicators calculated by the US dollar.

Table 6: Capital Resources of Five Countries (% in World's Total)

	1975	1980	1985	1990	1995	1998
Gross domestic investment						
China	3.45	4.41	7.61	8.32	16.26	17.59
India	2.92	2.73	3.96	4.56	5.77	5.74
Japan	10.56	10.29	10.26	11.99	10.76	10.09
Russia	—	—	—	6.96	3.15	1.84
USA	16.19	17.43	19.16	14.99	16.07	17.71
Five in total	—	—	—	46.82	52.01	52.97
Capital market value						
China	0	0	0	0	0.24	0.84
India	—	—	—	0.41	0.71	0.38
Japan	—	—	—	31.0	20.6	9.09
Russia	—	—	—	—	0.09	0.08
USA	—	—	—	32.6	38.6	49.0
Five in total	—	—	—	64.01	60.24	59.39
Net FDI						
China	0	0	5.12	5.46	40.27	20.8
India	0.56	0.26	0.35	0.22	2.62	1.5
Japan	—	0.21	0.78	0.51	0.01	0.3
Russia	—	—	—	0	1.6	1.1
USA	6.83	28.6	21.5	18.1	15.6	22.2
Five in total	—	—	—	24.29	60.1	45.9
Capital resources						
China	1.73	2.21	3.81	3.87	10.0	9.4
India	1.74	1.50	2.16	2.0	2.7	2.5
Japan	5.28	5.25	5.52	14.4	10.5	6.9
Russia	—	—	—	—	1.5	0.9
USA	11.51	23.02	20.33	23.4	23.8	31.1
Five in total	—	—	—	43.67	48.5	50.8

Note: The weighted average of the data for 1975-1985 is all calculated by 0.5 ; that of data for other years is calculated by capital resources=0.4×domestic investment+0.3×capital market+0.3×net FDI ; capital market refers to the market value of stocks(US dollar).

5) Knowledge & Technology Resources

We deem knowledge & technology resources the most important strategic resources and, with the inset of the knowledge and information society, the importance is growing daily. Knowledge & technology resources include five major indicators: (1) scientific and technical journal articles refer to scientific and engineering articles published by about 4,800 international academic publications. It reflects the knowledge innovation

capability of a country; (2) patent applications by residents of a country. It reflects the technology innovation capability of country; (3) personal computers, i.e., self-contained computers designed to be used by a single individual. It reflects the capabilities of applying new technologies of a country; (4) internet hosts, i.e., computers with active internet protocol (IP) addresses connected to internet. All hosts without a country's code identification are assumed to be located in the US. It reflects the capabilities of a country in spreading information; (5) government spending on R&D, that is, the potential knowledge and technology innovation capabilities of a country in a long run. The five indicators present a full picture of a country in promoting knowledge innovation and dissemination, technology innovation and popularization in the information era.

Table 7: Knowledge & Technology Resources of Five Countries

(% in World's Total)

Country	1980	1985	1990	1995	1998
Personal computers					
China			0.37	1.14	2.65
India			0.2	0.5	0.65
Japan			5.56	6.28	7.21
Russia			0.38	1.08	1.43
USA			40.67	35.91	29.79
Five in total			47.18	44.91	41.73
Patent applications filed by residents				1996	1997
China				1.61	1.6
India				0.23	1.27
Japan				46.88	44.05
Russia				2.49	1.91
USA				15.39	15.77
Five in total				66.6	64.6
Scientific and technical journal article			1989	1997	
China	0.33	0.54	1.02	1.42	1.77
India	3.49	2.69	2.28	1.8	1.65
Japan	7.47	8.31	8.87	9.04	8.56
Russia				3.93	3.34
USA	39.37	38.64	38.03	32.68	32.54
Five in total				48.87	47.86

Internet hosts					
China				0.02	0.15
India				0.01	0.03
Japan				2.83	3.63
Russia				0.23	0.35
USA				63.68	70.82
Five in total				66.77	79.98
R&D spending					
China	1.25	1.34	1.67	2.53	3.1
India	0.96	1.33	1.52	1.71	1.71
Japan	8.99	10.02	11.51	11.59	10.06
Russia				1.07	1.02
USA	26.01	27.12	25.12	25.27	25.72
Five in total				42.17	41.61
Total technology resources in world's total					
China	0.79	0.94	1.01	1.34	1.85
India	2.23	2.01	1.23	0.85	1.06
Japan	8.23	9.17	8.56	15.32	14.70
Russia	0.00	0.00	0.08	1.76	1.61
USA	32.69	32.80	34.26	34.59	34.93
Five in total			44.88	53.86	54.15

Note: The weighted average of the data for 1980 and 1985 年 is 0.5 , that of data for 1990 is 0.33 ; that of data for 1995 and 1998 is 0.2.

6) Government Resources

Due to limitations by calculable indicators, we use only one indicator here, that is, the fiscal spending of the central government, which includes both current and capital spending, both commercial and service spending and spending on both non-financial public undertakings and public organizations. It reflects the ability of a national government to mobilize and utilize resources.

Table 8: Governmental resources of Five Countries

	(% in World's Total)					
country	1975	1980	1985	1990	1995	1998
% of central spending in GDP						
China	13.66	14.74	8.87	5.42	3.41	3.94
India	10.95	12.25	15.18	15.96	14.48	14.37
Japan	14.72	18.38	17.23	15.70	—	—
Russia	—	—	—	—	25.37	—
USA	21.01	22.02	24.14	23.49	22.64	21.05
Five in total	23.04	25.34	27.51	26.17	29.58	28.67
% of central spending in world's total						
China	1.65	1.84	1.48	1.16	1.03	1.15
India	1.66	1.63	2.10	2.66	2.46	2.72
Japan	5.01	5.83	5.18	5.24	7.06	7.06
						(1993)
Russia					2.60	2.60
						(1995)
USA	20.7	19.1	19.0	18.7	15.9	15.8
Five in total					29.05	29.33

7) Military Resources

Military power is an important component part of CNP. It reflects the abilities of a country in maintaining social stability and stops separatism and also reflects the external power for seeking the maximization of interests abroad. Military power is also a kind of “output” of the national power. (Ashley Tellis et al ,2000) and it is, therefore, extremely important strategic asset, because military power is not only an explicit function of CNP but also an expressive function of the will of a state. Military resources have two major categories of indicators: (1) military expenditures covers military-related expenditures of the defense ministry (including recruiting, training, construction, and the purchase of military supplies and equipment) and other ministries are excluded. Military assistance is included in the expenditures of the donor country, and purchases of military equipment on credit are included at the time the debt is incurred, not at the time of payment; (2) armed forces personnel refer to duty military personal, including paramilitary forces if those forces resemble regular units in their organization, equipment, training, or mission.

Table 9: Military Resources of Five Countries

(% in the World's Total)

Country	1985	1990	1995	1998
Armed forces personnel				
China	18.25	16.21	12.56	11.73
India	5.61	5.24	5.40	5.69
Japan	1.07	1.03	1.00	1.13
Russia			6.00	5.87
USA	9.99	9.31	7.33	6.91
Five in total			32.29	31.33
Military expenditures				
China (a)	4.84	5.31	7.69	9.11
China (b)	2.11	2.38	3.81	4.51
India	2.87	3.40	4.75	6.14
Japan	1.79	2.38	3.30	3.15
Russia			6.67	5.98
USA	28.45	29.20	31.03	28.44
Five in total			53.44	52.82
Military resources				
China (a)	10.20	9.67	9.64	10.16
China (b)	8.57	7.91	7.31	7.4
India	3.97	4.14	5.01	5.96
Japan	1.50	1.84	2.38	2.34
Russia	—	—	6.40	5.94
USA	21.07	21.24	21.55	19.83
Five in total	—	—	44.98	44.23

Note: % of military resources in world's total = 0.4×% of military personnel in world's total+0.6×% of military spending in world's total.

a: World Bank statistics;

b: China's official statistics

8) International Resources

They include four categories of indicators: (1) volume of exports and services ; (2) volume of imports and services ; (3) Royalty and license fees receipts; (4) Royalty and license fees payments. They are receipts or payment between residents and nonresidents for the authorized use of intangible, non-produced, non financial assets and proprietary

rights (such as patents, copyright, trademarks, industrial processes, and franchises) and for the use, though licensing agreements, of produced originals of prototypes (such as manuscripts and films) come from copyright and patents. The former two indicators reflect the ability of a country to utilize and open up international market ; the latter two reflect the abilities of a country to create and utilize international technologies.

Table 10: International Resources of Five Countries

(% in the World's Total)

Country	1980	1985	1990	1995	1998
Exports & service					
China	1.1	1.25	1.35	2.33	3.08
India	0.49	0.57	0.54	0.63	0.7
Japan	6.41	8.77	7.64	7.83	6.47
Russia				1.45	1.3
USA	11.85	12.86	12.65	12.58	13.84
Five in total				24.77	24.76
Imports and service					
China	0.86	1.79	1.1	2.18	2.49
India	0.75	0.85	0.74	0.82	0.89
Japan	6.75	6.66	7.01	6.75	5.45
Russia				1.27	1.11
USA	12.51	18.03	14.52	14.34	16.46
Five in total	—	—	—	25.37	26.40
Royalty and license fees receipts					
China	0	0	0	0	0.1
India	0	0	0	0	0.03
Japan	3.24	0	9.12	11.25	11.48
Russia	0	0	0	0.01	0.04
USA	65.55	62.33	56.7	56.74	57.21
Five in total				68.00	68.86
Royalty and license fees payment					
China	—	—	—	—	0.69
India	0.14	0.3	0.3	0.22	0.33
Japan	14.77	22.08	18.75	18.78	14.64
Russia	—	—	—	0.01	—
USA	10.26	11.38	13.04	13.8	18.48
Five in total					

International resources in world's total					
China	0.59	0.91	0.74	1.35	1.83
India	0.40	0.49	0.44	0.48	0.55
Japan	7.55	9.05	9.97	10.38	8.80
Russia	0.00	0.00	0.00	0.82	0.73
USA	22.47	24.01	22.10	22.18	24.23
Five in total	31.01	34.45	33.25	35.22	36.14

Note: International resources = $0.3 \times (\text{exports} + \text{imports}) + 0.2 \times (\text{copyright income} + \text{spending})$.

II. Methods to Measure CNP

To weigh and evaluate CNP, it is necessary to develop a new method that can be widely applied and has strong measurability and comparability. Here we introduce a traditional formula and method and then a kind of multiple-indicator dynamic equation and computing method developed by the authors.

1. Traditional Measurement

II.1.1) Klaus Knorr defined national power as power that includes economic capabilities, administrative competitiveness and the ability of war mobilization (Klaus Knorr, 1956). This is the earliest equation for calculating national power, which shows that people had already become aware that national power does not only mean economic strength, although the latter provides the basis of national power.

II.1.2) A complex nonlinear multivariable index that attempt to both identify discrete variables and specify their interrelationships came in 1960 with the work of Clifford German, who produced a world power index that took the following form:

$$G = N (\text{national power}) = N (L + P + I + M),$$

Where N stands for nuclear capability, L stands for territory, P stands for population, I stands for the industrial base, and M stands for military size. This is a national power equation centering round nuclear capabilities. The national power is in direct proportion to nuclear capability. It reflects the special importance of having nuclear weapons

during the Cold War and the Nuclear Era. In fact, all major countries have worked flat-out to develop nuclear weapons after World War II, which are used as the most important strategic resources and tactical means.

II.1.3) A semi nonlinear multivariable index was subsequently proposed by Wilhelm Fucks in 1965, who sought to derive national power from three sum-mational variables—population size (P), energy production (Z), and steel production (Z1)—arranged in one of nine formulas for measuring the national power (M), all of which were variants of one another and took the form:

$$M = (P^2) \times Z$$

$$M = (P^{3/2}) \times Z1$$

The equation is based on the traditional resources in the era of industrialization. The strategic objectives are to obtain more energy in the world and to raise the industrial productivity.

II.1.4) Ray Cline's national power equation (Ray Cline, 1975):

$$P = (C + E + M) \times (S + W)$$

where C stands for population and territory, E stands for economic capacity, M stands military capacity (including the strategic balance plus combat capabilities and a bonus for effort), S stands for the national strategy coefficient, and W stands for national will (including the level of national integration, the strength of leadership, and the relevance of strategy to the national interest). This is a CNP formula. The first part of the equation reflects the objective strength or hard factors and the second part reflects the subjective strength or soft factors. CNP is the multiplication of the two, reflecting the attention attached by the author to soft factors. But it is difficult to calculate the soft factors. Some variants were used to develop the U.S. Army's estimates of long-range trends in the international system.

II.1.5) The method advanced by Ashley Tellis and other scholars of RAND. They hold that traditional indicators and methods are unable to reflect the national power in the information age. They have introduced their new concepts but have not produced any calculation equation or results of computing for international comparison.

Traditional approaches just give simple rank-ordering of capabilities but not identify the real gaps and relative changes of the indicators. It is, in fact, only semi-quantitative method. We hope to develop a comprehensive quantitative method that traces the relative changes in CNP of great powers.

2. Methods of CNP Calculation by Chinese Scholars

II.2.1) The indicator system and weighted average scheme that covers eight aspects and 64 indicators had been advanced by the Chinese Academy of Social Sciences (Wang Songfen, 1996). The basic method is to process the hard indicators in a standard way and use Cline's integrated scoring method to make indicators of different measures to transit to standard collectable data. Then, after simple addition and collection level by level to obtain the basic data sheet and, on this basis, rank order various countries according to their national capacity. After that, qualitative and quantitative analysis will allocate a certain weighted average according to different levels to make corrections and adjustments of the basic data to obtain the weighted average data sheet, with which to make comparisons.

II.2.2) Method that evolved by the Chinese Military Academy represented by Huang Suofeng (1996, 1999). Huang holds that CNP should be the organic integration of capacities of survival, development and coordination, so he designed a "CNP dynamic equation", which takes the following form:

$$P=K\times H\times S$$

where P is CNP of a given year; K is the coordination system, including factors such as the capacities of national leaders to coordinate and unify; H is hardware, including all physical factors; S is software, including ideational ethos, intelligence and other factors.

II.2.3) Analytic hierarchy process that developed by the China Institute of Contemporary International Relations. This, plus expert survey, regression analysis, nerves network and cluster analysis, first construct a CNP indicator system. Then the data collected according to the indicators are processed in a standard and dimensionless manner, establish the weighted average for each indicator and, on this basis, compute

the value of CNP.

According to the study of Chinese scholars, the ranking in CNP of five major powers in 1998 was the United States, Japan, Russia, China and India (Huang Surfing, p. 119; Wang Songfen, P. 439, China Institute of Contemporary International Relations, P. 28). In sum, we may arrive at the following conclusion: Chinese scholars stress integration of qualitative and quantitative analysis, with emphasis on quantitative analysis. But those models of analysis are mainly confined to traditional approaches.

3. A New Method and Its Characteristics

This paper introduces the following the formula of CNP, which takes the form:

$$NP = \sum (a_i \times R_i)$$

where, NP is CNP, R_i is the percentage of a certain resource in the world's total; a_i is the weighted average of a certain resource. When time variable is considered, the formula should be:

$$NP(t) = \sum (a_i \times R_i(t))$$

The characteristics of the method are explained as follows:

First, the paper adopts the dimensionless specific gravity method to compute the percentage of major strategic resources of countries in the world's total. CNP refers to relative national power. What we concern more about is whether or not CNP or strategic resources of a country rises or falls relative to another country. Then, as the units of the more than 20 indicators are different and they cannot be added up, we use the specific gravity method (to convert different units into a unified unit – percentage) to add them up to constitute CNP. On this basis, we make international and historical comparisons.

Secondly, the paper defines eight kinds of strategic resources and 23 major indicators to constitute a computable CNP equation, which reflects, in a comprehensive manner, the strategic resources and CNP of different countries.

Thirdly, the paper adopts different weighted average for different indicators to mirror their importance. For instance, the weighted average of the strategic assets in the knowledge or information age is different from that in the industrial age. The former includes mainly knowledge, technology, information and other new strategic resources, whose roles are on the rise swiftly; the latter includes territory, food grain, energy, iron and steel and other traditional resources, whose roles are declining. In view of this, the paper gives a considerable high weighted average to knowledge and technology (see Table 11).

Fourthly, the equation is dynamic, changing with the times. It does not only reflect CNP or strategic resources of a country relating to another country but also the dynamic changes among them.

Table 11 All Kinds of Strategic Resources and Major Indicators

Number	Type of resources	Weighted average	Indicator	Weighted average of indicators
1	economic resources	0.2	GDP(PPP ,international dollar)	1.0
2	human capital	0.1	A. Working age population (aged 15-65)	
			B. Human capital (Average number of years of education received)	
			C. Total human capital=A×B	1.0
3	natural resources	0.1	Electricity Royalty and license fees receipts production	0.25
			Commercial energy use	0.25
			Sowing areas of farm crops	0.25
4	capital resources	0.1	Freshwater withdrawals	0.25
			Gross domestic investment	0.4
			Capital market value	0.3
			Net foreign direct investment	0.3
5	knowledge and technological resources	0.2	Number of personal computers	0.2
			Internet users	0.2
			Patent applications filed by domestic residents	0.2
			Scientific and technical journal articles	0.2
			R&D spending	0.2
6	governmental resources	0.1	Expenditure of central government	1.0
7	military resources	0.1	Armed forces personnel	0.4
			Military expenditures	0.6
8	international resources	0.1	Export commodities and services	0.3
			Import commodities and services	0.3
			Royalty and license fees receipts	0.2
			Royalty and license fees payments	0.2

The paper uses the *World Development Indicator Database 2000* by the World Bank, which contains more than 500 economic and social indicators of 206 countries and regions in 1960-1998. In calculating human capital (Average number of years of education received by people above 15 years), the paper uses Barro and Lee's global education database of Harvard University (Barro and Lee, 2000).

III. Dynamic Change of the CNP of Five Great Powers (1980-1998)

The economic, political and security pattern of the modern world has been influenced by the rivalry of a few major powers. The world has not been in balance or in peace. Over the two decades, changes have taken place in CNP of the five major powers, reflecting imbalance and the rise and fall in the development among the super or big powers, with some rising, some falling and some changing not much.

Table 12: Strategic Resources and CNP of Five Great Powers
(% in World's Total)

Country	1980	1985	1990	1995	1998	Change in 1980-1998
Economic resources						
China	3.16	4.57	5.63	8.87	10.23	7.07
India	3.36	3.80	4.35	5.02	5.41	2.05
Japan	8.04	8.27	8.73	8.38	7.82	-0.22
Russia	—	—	5.43	3.02	2.52	—
USA	21.96	21.60	20.85	20.73	21.29	-0.67
World in total	—	—	44.99	46.02	47.27	—
Human capital					1999	
China	17.6	18.7	20.2	21.9	24.0	6.4
India	8.40	9.06	9.98	11.1	12.3	3.9
Japan	4.36	4.01	3.73	3.55	3.27	-1.09
Russia	5.69	5.30	5.05	4.26	4.06	-1.63
USA	1.16	1.02	9.30	9.01	8.60	-3.0
Five in total	47.7	47.2	48.2	49.8	52.2	0.45
Natural resources						
China	8.65	8.57	9.30	9.62	9.64	1.23
India	6.68	6.75	6.97	6.59	6.68	0
Japan	3.34	3.23	3.41	3.54	3.48	0.2
Russia				7.57	7.10	
USA	18.29	16.81	16.42	15.95	16.02	-2.44
Five in total				43.26	42.84	
Capital resources						
China	2.21	3.81	3.87	10	9.4	7.19
India	1.5	2.16	2.0	2.7	2.5	1
Japan	5.25	5.52	14.4	10.5	6.9	1.65
Russia				1.5	0.9	
USA	23.02	20.33	23.4	23.8	31.1	8.08
Five in total			43.67	48.5	50.8	

Knowledge and technological resources						
China	0.79	0.94	1.01	1.34	1.85	1.06
India	2.23	2.01	1.23	0.85	1.06	-1.17
Japan	8.23	9.17	8.56	15.32	14.70	6.47
Russia			0.08	1.76	1.61	
USA	32.69	32.8	34.26	34.59	34.93	2.24
Five in total			45.14	53.86	54.15	10.21
Governmental resources						
China	1.84	1.48	1.16	1.03	1.15	-0.69
India	1.63	2.10	2.66	2.46	2.72	1.09
Japan	5.83	5.18	5.24	7.60	7.60	1.77
Russia				2.60	2.60	
USA	19.1	19.0	18.7	15.9	15.8	-3.3
Five in total				29.05	29.87	
Military resources						
China		8.57	7.91	7.31	7.4	-1.17
India		3.97	4.14	5.01	5.96	1.99
Japan		1.50	1.84	2.38	2.34	0.84
Russia				6.40	5.94	
USA	21.07	21.24	21.55	19.83	21.07	-1.24
Five in total				42.65	41.47	
International resources						
China	0.59	0.91	0.74	1.35	1.83	1.24
India	0.40	0.49	0.44	0.48	0.55	0.15
Japan	7.55	9.05	9.97	10.38	8.80	1.25
Russia	—	—	—	0.82	0.73	—
USA	22.47	24.01	22.10	22.18	24.23	1.76
Five in total	—	—	—	35.21	36.14	—
CNP						
China	4.736	5.306	5.646	7.163	7.782	3.046
India	3.376	3.615	3.735	4.008	4.365	0.989
Japan	6.037	6.337	7.317	8.535	7.749	1.712
Russia	—	—	3.271	2.808	—	—
USA	22.485	22.022	22.138	21.903	22.785	0.3
Five in total	—	—	42.107	41.613	43.393	—

Note:

1. The weighted average of economic and technology resources is 0.2 and that of other resources is 0.1;
2. The lack of some data does not affect the accuracy in the judgment of the general trend.

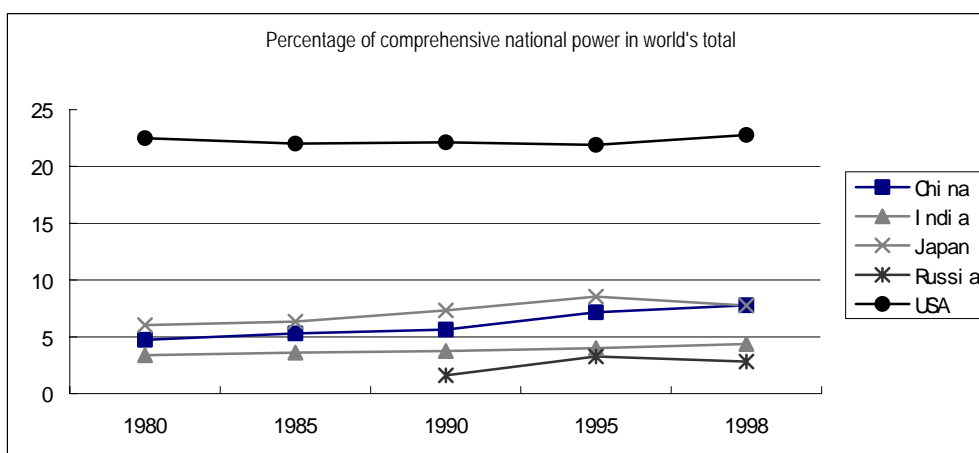
The United States remains the superpower in the world. CNP of the United States in 1980 accounted for 22.485% in the world's total and 22.785% in 1998, The U.S. still ranks first in the world.

China has risen to the second world power. In 1980, CNP of China accounted for 4.763% in the world's total, lower than that of the former Soviet Union and Japan, ranking fourth in the world. But by 1998, it rose to 7.782%, rising by 3.046 percentage points. The relative gap between China and the United States has been narrowed. CNP of China was only 1/5 (21%) that of the United States in 1980, 1/4(25.5%) in 1990. But by 1998, it was 1/3 (34%) that of the United States. In other words, the gap between the

United States and China in the term of CNP has been narrowed from five times to three over the past two decades.

Japan ranks third in CNP, similar to China (7.749%), it rose first (in 1980-1995) and then fell comparatively (after the 1990s). India ranks fourth in the world, with a CNP accounting for 4.365% in the world. The relative gap between China and India was expanded from 1.4 times to 1.8 times. Russia is falling in CNP. It was 1.712% in 1998, the lowest of the five major powers. The gap between China and Russia was enlarged from 2.2 times in 1995 to 2.8 times in 1998.

The relative changes in CNP of the five major countries inevitably caused major adjustments of national security strategies and foreign strategies of their respective countries. In the eyes of the United States, the rapid rise in China's CNP will inevitably make China its strategic rival and even a challenge. It is, therefore, necessary to adopt precautionary and containment strategy against China. Paul Kennedy, Professor of Yale University holds that China perhaps is the only country that will constitute real challenges to the dominance of the United States (Paul Kennedy, 2002). Japan, however, has seen China a real strategic threat, so it has strengthened its strategic alliance with the United States against China. To India, China has always been a major strategic threat, it has for a long time maintained its military spending at about 2.4-3.5% of its GDP. To Russia, due to its rapid decline in its CNP, it has found its gap with China enlarging. At present, Russia's strategy is favorable to China yet its future strategy is not clear. All the above shows that over the past two decades, China's CNP has been rising rapidly, with its strategic resources and environment improving, its CNP grows higher than its neighboring great powers. But the latent strategic conflict between China and the United States is exacerbating.



IV. Dynamic Evaluation of China's Strategic Resources

Our initial computation results show:

First, computed by PPP, the percentage of China's economic resources in the world's aggregate has been rising swiftly, with the relative gap to the United States narrowing significantly. China has become not only the most rapidly rising economy and market in the world but also would be the largest economic entity in the world.

According to the statistics released by the China's National Bureau of Statistics, China's GDP in 2000 was 7.3 times that of 1978, averaging an annual growth of 9.5% (China Statistical Abstract, 2002, p.19). China's GDP was increased by nearly eight times (7.9 times) in 1978-2001.

Calculated by the PPP international dollar(current price), China's GDP accounted for 2.78% in the world in 1975, lower than the Soviet Union (No. 2 in the world) and Japan (No. 3 in the world). By 1990, however, the percentage rose to 5.63%, outstripping Russia to rank after Japan. By 1995, the figure rose to 8.87%, throwing Japan behind to rank second in the world, only after the United States. By 2000, the figure rose to 11.16% (See Table 1), 8.38 percentage points higher than in 1975 when its GDP was 12.3% of the GDP aggregate of the United States.

According to the 2000 Global Competitiveness Report by the World Economic Forum and the International Development Institute of Harvard University, the top ten in terms of GDP in the world for 1999 (calculated by PPP international dollars) were USA (100), China (51.2), Japan (34.7) Germany (21.4), India (20.8), France (15.0), UK (14.5), Italy (14.4), Brazil (12.3) and Russia (11.0) (Porter Michael et al, 2000).

According to 1990's PPP international dollar, the study by Maddison showed that in 1978 China's GDP accounted for 4.9% of the world's total, 11.5% higher than in 1998. The GDP of the United States in the world's total rose from 21.6% to 21.9%; what of Japan rose from 7.6% to 7.7%; that of Russia dropped from 9.0% to 3.4%; and that of India rose from 3.3% to 5.0%. The percentage of China's GDP in the total of the United States rose from 22.7% to 52.5% (Table 13, Angus Maddison, 1998, 2001).

Table13: Comparison of GDP of Five Countries

(% of world's total)

	1950	1978	1998
US	27.3	21.6	21.9
Russia	9.6	9.0	3.4
Japan	3.0	7.6	7.7
China	4.5	4.9	11.5
India	4.2	3.3	5.0
Five in world's total	48.6	46.4	49.5

Note: the figures are based on 1990's PPP international dollar.

Source: Angus Maddison, 1998, 2001.

The above evaluations show that, calculated by PPP international dollar, China's current GDP is 1/10 of the world's total, or 1/2 that of the United States. This is the basic estimation of China's economic strength (or relative economic strength).

China is a country with the greatest potential for development in the world. That is the basic reason why its CNP has been rising steadily. According to the 2000 Global Competitiveness Report, of the 59 major countries in 1990-1999, China ranked first in per capita GDP growth, with 11.3%. India ranked the 12th; USA, the 24th; Japan, the 44th; Russia, 56th, with -6.43% and per capita GDP dropping by 75.2% (Porter Michael et al, 2000).

According to World Bank statistics, China has a great potential in its long-term growth. Take the period 1965-1999 (including the ten-year great cultural revolution) for instance, taken the world economic growth as the average (1.00), China's GDP growth potential index was 2.45; per capita GDP growth potential was 4.00; The indices for India were 1.40 and 1.50; those for Japan were 1.24 and 2.13; those for the USA were 0.91 and 1.25 (See Table 2). Based on the above-said growth potential, China would become the biggest economic entity in the world by 2020, with its GDP making up 22.2% of the world's total, higher than that (19.96%) of the United States (See Table 3). According to the estimates by Maddison, China's GDP would exceed that of the United States by 2015. China's GDP would make up 17.4% of the world's total and that of the United States, 17.3% (Maddison, 1998). The World Bank estimates show that China would outpace the United States in GDP by 2020. All the estimates show that if China maintains relative social stability and realizes a sustainable economic growth, it is

possible for China to become the largest economic power of the world in 20 years.

The steady rise in economic strategic resources is the most important basis for the rising CNP. Over the past more than 20 years, the rising percentage of China's GDP in world's total has played the biggest role in boosting the newly added CNP index, with a contribution of 46.4%.

Secondly, China has the richest human capital in the world, which is the strongest of all national strategic resources. According to national population census, the percentage of the population aged 15-64 was 61.5% in 1982, but rose to 70.15% by 2000; the growth of the population aged 15-64 in the same period was 1.97%, higher than the natural growth of the population (1.23%). The number of years of education received by people at and above 15 years rose from 4.61 in 1982 to 7.11 in 2000, rising by 54%. The total human capital rose from 2.88 billion/year in 1982 to 6.314 billion/year by 2000, more than doubled. Of this, the contribution by population change factor (growth of population aged 15-64) was 45.2%. The contribution by the rise in educational level (growth in the number of years of education received by the population) was 54.8%. The percentage of total human capital in the world's total rose from 17.6% in 1980 to 24.0% in 1998 (See Table 4), doubling that of India and 2.8 times that of the United States. This shows that China has become a No. 1 big power in terms of population but also in terms of total human capital. This is the biggest advantage in its national strategic resources. The contribution by human capital to rising CNP over the past 20 years ranked third or about 1/5 (21.0%). The full utilization of human capital will remain the extremely important development strategy in the future.

Thirdly, China is a big power in terms of natural resources, ranking second in the world in the actual utilization of major natural resources. China's power consumption in the world's total has risen significantly, rising from 3.15% in 1980 to 8.39% in 1998, ranking second in the world. The percentage of commercial energy in the world's total also rose, from 8.18% in 1980 to 11.8% in 1998, ranking second in the world. But the percentage of sowing area of crops has been falling steadily, dropping from 17.01% in 1980 to 13.52% in 1998, also ranking second in the world, lower than India. But its percentage of water sources remains unchanged. China's natural resources in the world rose from 8.54% in 1975 to 9.88% in 1998, ranking second in the world in terms of available natural resources, only after the United States (see Table 5). China's percentage of natural resources in the world's total rose by only 1.23 percentage points,

with their contribution to the newly added CNP being only 4.0%. This also reflects the fact that the percentage of China's population is higher than the percentage of natural resources in the world's total but the per capita natural resources and utilization are lower than the world's average, without any comparative advantages.

Fourth, the percentage of China's capital resources in the world's total has risen rapidly, with greater potential to tap. At the beginning of reform, China was relatively short of capital resources. In 1980, the total domestic investment made up only 4.4% of the world's total. There was no foreign direct investment and there was no capital market. Its capital resources accounted for only 1.276% of the world's total. With opening up to the outside world and the development of the financial market, this percentage rose to 3.87% in 1990 and up to 9.4% by 1998 (See Table 6). Compared with the United States, the amount of domestic investment in the world's total was slightly higher than the United States. China's foreign exchange reserves were more than the United States. But the capital market (market value of the stock market) was far lower than the United States. In 1998, the market value of the US stock market was 58 times that of China's. Conversely, China has great potential in the development of capital market, depending on how to open up, develop and standardize the capital market.

Fifth, China is poor in knowledge and technological resources, the weakest of all its national strategic resources. In 1980, China's knowledge and technological resources accounted for only 0.79% of the world's total. In the 1990s, China's knowledge and technological resources in the world's total rose to 1.85% due to the rapid increase in mobile phones. But in the same period, the percentage of the United States was 34.9% and that of Japan, 14.7%. China's knowledge innovation capabilities (number of scientific papers) were very low, accounting for only 1.77% of the world's total. Technical innovation capabilities ((number of patent applications filed by residents) accounted for only 1.6% of the world's total (See Table 7). In reality, only 0.2% and 0.1% of the patents filed by Chinese residents were approved by the United States and Europe, respectively. Over the past dozens of years, about 75% of the Nobel Prize winners in natural sciences, economics and sciences of medicine did research or lived in the United States. Most of the information in the Internet came from the United States (Paul Kennedy, 2002). In 1999, the number of scientists and technical personnel in China reached 2.91 million, including 1.59 million scientists and engineers (NSS, 2001; China Statistical Abstract, P. 168). According to the World Bank statistics, there were 1.02 million scientists and engineers engaged in R&D in the United States. The number

in Japan was 620,000. China ranked third, with 570,000; Russia, 520,000; India, 150,000 (World Development Indicators, 2001, pp.12-14, pp.310-312). No matter how it was counted, China was lower than the other four major powers in terms of the number of papers and patents. This shows that although China has relatively abundant number of scientific and technical personnel (ranking third in the world); the current scientific and technical system has not shaken off the shadows of the planned economic model, thus greatly restricting the innovation capabilities and labor productivity. That is why China is not a big power in terms of neither scientific innovation nor in technical innovation.

Sixth, China is the lowest of the five major powers in terms of the percentage of governmental resources and the percentage is dropping steadily. In 1980, China's expenditure of the central finance made up only 1.84% of the world's total, less than 1/10 of the United States, or 1.03% less than in 1995, barely half of India and Russia. In 1997, it was only 1.15% of the world's total. The fiscal capabilities of the central government of China were barely 1/10 of the United States, far lower than the percentages of other types of resources in the world's total. As a big populous power, China requires that the government should provide all kinds of public goods and services. As the biggest developing country, China requires the government to invest in infrastructure and telecom facilities; as a country with the biggest regional disparities, it requires the government to coordinate the development of different regions and promote the development of the areas inhabited by national minorities. As the third largest country in terms of territorial land and seas and with a dozen neighbors that are still in the state of division, it requires the government to have necessary defense spending. The low fiscal capability cannot solve the above problems. This is the "fatal point" in china's strategic resources.

Seventh, China ranks first in terms of military personnel and it assumes a downward trend, dropping from 18.25% in 1985 to 11.73% in 1998. According to the World Bank, China's military spending accounted for about 10% of the world's total while that of the United States, 28.44%. China's military spending is only 1/3 that of the United States or twice as much as that of India and four times that of Japan. But according to Chinese official figures, China's military spending was only 1/6 that of the United States. What needs explaining is that China's military spending is relatively low and the structure of the spending is extremely irrational, with 60-70% devoted to head counts and only very little to military technical equipment and R&D. But the United States only spends 19%

on head counts and 18% on procurement of military technical equipment and 14.2% on R&D, and nearly 35% on maintaining combat readiness and executing military actions (Alexei Arbatov, 2002).

Eighth, China has limited capabilities in utilizing international resources. The percentage of international resources used by China is quite small in the world's total, only 0.59% in 1980, although it rose to 1.83 in 1998. But that of the United States was 24.23%. Over the past 20 years, China's export and import accounted for only 2.5-3.0% of the world's total while the spending on copyright and patents was only 1% of the world's total. So, China is neither a software export power nor a software importer, failing to make full use of the opening up to absorb global software technologies.

The above analysis shows that, China's eight kinds of strategic resources in the world's total are extremely unevenly distributed. It has only advantages in single kind of strategic resources but disadvantages in a number of other resources relative to those of US. China enjoys global strategic advantage in human capital and some advantages in natural resources and capital resources. But it has apparent disadvantages in knowledge and technological resources and in the utilization of international resources. The government has poor abilities of drawing in and operating finance, still a very weak "central government". Militarily, it is still not enough to cope with the military challenges by the forces advocating for Taiwan independence and power politics of external hegemonies. The governmental resources and military resources are still assuming a downward trend. This reflects the unevenness in the development of different strategic resources and also the advantages and disadvantages of strategic resources. These have provided us with the basis for establishing the "grand strategy for the 21st century." The objectives of China's grand strategy should be to give full scope to the strategic advantages and turn strategic disadvantages into strategic advantages.

V. Conclusions: Aims of China's Grand Strategy

Based on the evaluation of the above strategic resources, we hold that the objectives of China's grand strategy should be to make the people rich and the country strong, that is, constantly raising the percentage of its CNP in the world's total so as to become a big world power in the middle of this century. The basic objectives of China's grand strategy in the future 20 years should be to including 6 goals: "high growth, great

national power, affluent people, national security, improvement of international competitiveness and sustainable development".

China will have quadrupled its gross economic volume by 2020, with the average annual GDP growth rate topping 7 percent from 2001 to 2020. In the meantime, China's GDP will be 16 times as much as that of 1978 by constant prices, one-fifth of the world's total, while the per-capita GDP will by then reach or approach the international level, making the country the world's biggest economic entity. Besides, the trade growth will surpass the economic growth, with China's trade volume making up about 10 percent of the world total and the country jumping to the second major trading country from the present sixth.

In the coming 20 years the relative gap between China's overall national strength and that of the United States will be reduced to two-fold from three-fold, making the country a world power with dominant ability.

The per-capita income level will see a constant improvement, rising from the current low-middle to the middle or above the middle level, while the life quality of the people will become noticeably better. The per-capita schooling years and life expectancy will witness an overall enhancement. The human development index will reach a fairly high level from today's mediocre level. Absolute poverty will be eliminated from population, and China will be built into a "Xiaokang" (" Well-off ") society of common prosperity.

National security and unification must be safeguarded. At the same time, defense and combat capability in high-tech conditions should be increased, the mechanization and informationization of the military be completed so as to achieve a leapfrog development of military modernization.

By 2020 China's international competitiveness will have climbed from the present backward 30th-40th placing to the world's top 10. By 2010 the population natural growth rate will have been kept within 5 percent and zero growth been achieved by 2020. Forest coverage will reach 20 percent in 2010 and 23.4 percent in 2020. Construction of safety nets for the prevention of all kinds of disaster will be intensified and the emergency management & aid system will be established. China's economic, social and science and technological development will enter its "prime time" in the next 20 years. By grasping this opportunity to speed up development, all the aforesaid goals

will be realized.

China should be to intensify investment in various strategic resources, to raise their percentage in the world's total, give full scope to strategic advantages and turn strategic disadvantages into strategic advantages so as to become the most economic power in the world instead of a big economic power and a world's big national power instead of a regional big power.

First, to maintain a sustainable and steady economic growth to narrow the gaps with the United States in terms of economic aggregate and outpace it in the 2015-2020 period, constantly raise the per capita income level, further improve the human development so that all the 1.5-1.6 billion people enjoy a better life, better ensure human security and more beautiful ecological environment, and further eliminate the number of people in absolute poverty, thus realizing the objective of common prosperity. (Hu Angang, 2000).

Second, to further intensify investment in human capital to realize the objective of popularizing elementary education, accelerating the development of secondary and tertiary education, expanding vocational studies and training opportunities, energetically developing network education and remote education programs so as to build the world's biggest "learning society" with lifelong learning system; to establish a nationally unified labor market with more flexible and free choices, free movement and open competition in the labor market, fully utilize the strategic advantages of human capital and turn them into sources of economic growth and economic wealth.

Third, to develop new energy sources and renewable energy, to protect the land resources, to economize the use of water sources and fully utilize internationally available strategic resources based on market mechanism and environment-friendly sustainable development model.

Fourth, to accelerate the transition from investment-driven growth to knowledge- and technology-driven growth, actively encourage and provide sufficient financial support to domestic knowledge and technology innovation, introduce low or zero tariffs on new technologies and equipment imported from other countries and scrap non-tariff barriers, allowing domestic companies and citizens globally direct to make procurement of technologies and software, foreign language materials and books, encourage foreign

residents to apply for patents in China and streamline patent application procedures.

Fifth, to accelerate the reform of the financial system, to standardize the capital market, to open up banking, insurance and securities markets to improve the direct financing and foreign financing sources of enterprises.

Sixth, to establish public management and public finance system to improve the drawing capacity of the state and standardize fiscal receipts and incorporate extra-budgetary receipts into the budget, intensify tax collection so as to raise the fiscal receipts in the GDP from 15% to 20% in the near terms and up to 25% in the middle term and raise the central fiscal receipts (not including debt receipts) from 7.8% in the near term up to 12% and up to 15% in the middle term; to accelerate the reform of the government, re-define the roles of the government in the market economy, introduce the information release system in fiscal receipts and expenditure, standardize the policy decision making procedures on fiscal spending, introduce competition and open bidding mechanism into government and public departments and raise the efficiency of fiscal expenditure.

Seventh, to raise sharply the percentage of defense spending in GDP to enhance the defense capabilities. The state should ensure the armed forces are fed by the government and it should be strictly forbidden to allow the armed forces to engage in business and profit-taking activities, standardize defense spending and statistics and increase transparency. The defense spending in GDP should be raised to 2.0% in the near terms and up to 2.5% in the middle term. It is necessary to cut non-military spending, improve combat capabilities and the abilities of coping with state crisis; to accelerate the reforms of the military system, ending the drawbacks featuring “autarchy” in its external relations and “small but complete” in its internal relations; to introduce a new model of “open army building”, expand social resources (technical, educational and human resources and infrastructure), raise the national defense mobilization capabilities and the capabilities of utilizing social resources, intensify and raise the military R&D and expand its overflow to the society and build partnership relationship with civil research organizations for mutual compliment; to further improve the wages and benefits of military personnel, open social security funds and personal retirement accounts for military personnel, introduce “training” of demobilized servicemen to prepared them for taking up civil jobs, establish education and training fund for demobilized servicemen to re-education and special training of demobilized servicemen and help them improve

their competitiveness.

Eighth, to intensify development and the use of soft forces while stressing the development of hard factors and raise the capabilities of operating strategic resources. CNP does not only include the hard factors but also soft factors. It is of great importance to stress international institutions, international prestige, cultural influence and other soft factors in safeguarding state interests and in developing CNP. It is essential to come to grip to both hard and soft factors at the international level and grasp both of them firmly and that should be the key to China's grand strategy of the 21st century.

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