The New 'Green 'China': Five-Year Plans For Economic and Social Development as a Tool for Redesigning the Chinese Economy

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Abstract— From 2015 China has started a green revolution; with reforms that change the internal economic-administrative system. The Chinese economic growth of the last thirty years has entailed extensive environmental damage, which must be quickly and urgently remedied. The rapid and intense industrialization and the use of technologies with a strong negative impact on the environment have created one of the most unsustainable atmospheric pollutions in the world, perceived as a serious threat to the health of the Chinese people. With the twelfth Five-year Plan for Economic and Social Development (2011-2015), the Chinese government has shown a completely new focus on the issue of environmental protection and upgrading, launching important policies to support investments in the alternative and renewable energy sector. The thirteenth Five-year Plan for Social Economic Development (2016-2020) was defined as the "green" five-year plan of all time, and is part of a phase of profound transformation of the Chinese economic model, with a turned towards slower but higher quality growth, with a greater focus on domestic services and consumption. The current Plan, in fact, introduces many changes due to more contained growth targets, with renewed interest in the green economy, to structural reforms with a view to greater competitiveness of the internal market. The paper analyzes the new course of the Chinese economy through the statements contained in the twelfth and thirteenth development plan, identifying the route traced by the mandarin government.

Keywords: Chinese five-year plan, Chinese economic growth, Chinese pollution, green economy

I. INTRODUCTION

Starting from 2015, due to necessity or opportunity, China has started a green revolution; with reforms that do not only change the internal economic-administrative system but which allow the second world superstar to reach the Paris Conference on climate change with a position of leadership (Chen et al. 2016). In this regard, in 2015 President Xi Jinping presented to the international interlocutors extremely convincing elements: the new environmental law, which came into force in January, the Action Plan for the prevention of water pollution, the reform of public utilities, the plan integrated reform for the promotion of technological progress, the national scheme for the issue of Green Bonds and, last but not least, the thirteenth five-year plan, which, in synergy, accelerate the process of environmental protection and the development of models of circular economy, placing China at the head of the global green revolution.

Furthermore, in May 2016, the Council of State approved the action plan for the prevention and control of land pollution, addressing, for the first time in an integrated way, the problem of soil remediation. This appears to be not only an 'international marketing' operation, but the expression of the will to rethink and redesign an entire model of economic and social development, based on a more moderate growth, but at the same time more balanced and widespread, as well as more open to international exchanges.

II. CHINA’S ECONOMIC GROWTH AND DEVELOPMENT

The Chinese economic growth of the last thirty years has entailed extensive environmental damage, which must be quickly and urgently remedied. The rapid and intense industrialization of some areas of the country and the use of technologies with a strong negative impact on the environment have created one of the most unsustainable atmospheric pollutions in the world, perceived as a serious threat to the health of the Chinese people.

China, since 2008, is the first country in the world for CO2 emissions, the gas most responsible for climate change. If we think of the massive and inefficient use of coal as a primary energy source, we get the image of a country that is the producer of 30% of worldwide emissions.

A further and urgent problem is water pollution, an inefficiently managed resource, with an indiscriminate exploitation by the agricultural sector, and with the spillage of industrial waste in the rivers and lakes that have led the country to face an unprecedented water crisis. It is estimated that about 70% of the water is polluted, while a third of the population does not have access to drinking water. Lastly, even if not less important is the urgency of land management: desertification advances to erode more than 15 thousand km2 of arable land each year (Chen et al. 2018).

All these elements have led the Chinese government, for some years now, to rethink the economic development module followed, above all with regard to environmental protection, as emerges from the analysis of the last Five Year Development Plans.

In recent years, GDP growth has shown a gradual slowdown, settling at 6.9% in 2015. This slowdown is due more to internal factors than to external phenomena, also because, from the analysis of the Chinese trade balance, no high weight emerges, of relations with foreign countries with respect to GDP. On the domestic side, however, the downsizing of the securities market and of foreign direct investment in China has certainly impacted.

About half of Chinese GDP is made up of investments, while the other half is due to domestic consumption, which in 2015 recorded a sharp contraction. The latter factor depends largely on the disharmonic development of the Chinese provinces, and on the deep differences that exist between the eastern and western areas, as well as the high development gap between large cities and rural areas.

Only a third of the Chinese population is actively contributing to the growth of consumption due to a large number of individuals still living in heavily backward rural areas. Such persons cannot move to the city improving their living conditions, contributing at the same time to the increase in
domestic consumption, for administrative reasons to which the government wants, soon, to cope with significant regulatory changes. Migration from the countryside to the cities is now perceived as inevitable, especially at the institutional level (Cook et al. 2018).

III. THE TWELFTH FIVE-YEAR PLAN FOR ECONOMIC AND SOCIAL DEVELOPMENT: THE PAST

With the twelfth Five-year Plan for Economic and Social Development (2011-2015), the Chinese government has shown a completely new focus on the issue of environmental protection and upgrading, launching important policies to support investments in the alternative and renewable energy sector.

The environmental pollution has caused a dramatic increase in the number of deaths and depletion of environmental resources, first among all air and water (Song et al. 2008). The Country is trying for some time to abandon the prevailing manufacturing model, replacing it, progressively, with the development of the service sector, to insure greater utilization of the labour force with increased income for the citizens, necessary to sustain internal consumption. This choice will have significant repercussions on the production system of the Country and, in the alternative, energy consumption, because the production of services requires a smaller amount of resources and energy with respect to industrial production. The stimulus for this trend reversal stems from the catastrophic environmental consequences of the growth process that has affected China in recent years. This uncontrolled process has contributed to the creation of real unsustainable areas of life with the presence, in the Chinese territory, of the first sixteen most polluted cities in the world, and with 80% of its watercourses irretrievably contaminated (Hongjiang et al. 2013). The philosophy which inspires the twelfth five-year plan sets the internal consumption as a driver of sustainable growth, in order to curb the deficit of foreign demand determined by the world crisis, and to improve the living conditions of the citizens, a demonstration that the protection of the environment and the quality of life of the Chinese people is an urgency that can no longer be neglected. The harmonious growth of the Chinese colossal also passes through the enfranchisement of the local production by the IDE: in this respect the increase of local consumption, and the quoted income support, are needed in order to reduce China’s dependence on exports.

After more than twenty years of growth without any control, nearing the realization of the completion of the twelfth five-year plan, China is moving toward a new perspective on a reading of the economic objectives already achieved and still to achieve. In this regard it is determinant the objective of restructuring the production system as a whole, it is no longer functional just to increase its results, but also a reduction of its environmental impact, with increasing attention to the quality, as well as the quantity, of the results achieved, through the promotion of tools and projects that strive to reduce pollution emissions and use of exhaustible resources. The twelfth five-year plan, which covers the period 2011-2015, is innovative, not only for the objectives that it proposes to achieve but also for the foundation that poses new transformations in the years to come.

China is today a country seriously concerned about the environment that its population lives, in addition to the enormous gap between the development of urban areas and the backwater of the rural areas (Yué 2014). The general situation goes from bad to worse if we consider the lack of coordination and reasoned programming of the use of the soil on the urban level: the lands ‘urbanized’ have grown at a faster rate than twice the growth of the population, without programming, or coordinating, the load capacity of the resources and the environment. Decisive element for the new route set for the development of the Chinese economy is, therefore, the five-year plan in which new targets have been identified for the use of renewable energies, as well as to policies for improving the energy efficiency, with considerable allocations for projects involving environmental protection. The five-year plan represents a turning point even with respect to the rules for determining the objectives, which have a seen diligent participation of local governments, in view to balance and harmonize the many social and economic souls in this great country (Frattini et al. 2013).

Sustainability is the keyword that characterizes the entire plan: this identifies some emerging areas to consider strategically important for the growth and sustainable development of the country. They include environmental protection, the use of biotechnology, and the development of food equipment with alternative energies.

The continuous postponement to the concept of sustainability represents the real factor of discontinuity with respect to the programming of the past and justifies a pending analysis of a plan, which, while coming to completion, represents the premise and the cornerstone of inspiration for future plans. In the above mentioned sectors, the process of innovation and research appears to be very important and at the basis of its foundation: in this respect, the plan provides for an increase in spending for R&D, going from 1.7% to 2.2% of GDP (Roach 2011).

The twelfth five-year plan is the document that is most attentive to the environment in Chinese history, even if it is not the only programming tool of environmental interventions issued by the government: during the United Nations Climate Conference in Copenhagen in 2009, the Chinese government made important commitments toward the international community. The authorities committed to reducing by 40-45% the carbon intensity and reach a 15% of the total consumption of energy from non-fossil fuel by 2020. It is worth noting how the active role that China has decided to take in addressing to demolish environmental pollution and the general interest toward sustainable development represents an exceptional and unique presentation card for a country which has the need and interest to obtain accreditation from partners and the international community.

The majority for the CDM (Clean Development Mechanism) projects are concentrated in the country under the companies can invest in the green project in developing countries and obtain CERs (credit emission reductions) equivalent to one ton of CO2 each, computed in order to reach the established international target levels. In other terms, through this mechanism, you can relocate the reduction of pollutant emissions, supporting green projects in emerging economies. In this regard, China represents one of the largest recipients of these projects. Still, the price of CERs is determined on the basis of the ratio supply-demand of the Chinese market (Yué 2014). One of the tools frequently used on the Chinese government to stimulate the renewable energy sector has been the tax incentive even if the commitment is not
limited to provide reductions and exemptions for companies operating in the green sector: in this regard, we should remember the provision of grants and incentives especially for companies that operate in the sector of wind and solar energy.

In this context, the twelfth plan provides for a total exemption from taxation for projects related to the conservation of water and CDM projects, in addition to a further reduction in taxation of 50% for the following three years (Jianliang et al. 2013).

The local authorities, for the first time in Chinese history, have played a primary role, having to manage and govern territories very different from each other, with particularity toward one or the other of the possible alternative energies. The plan proposes to make environmentally-friendly not only the productive national system but also direct investments coming from foreign countries toward reality in line with the turn attentive to the environment. The so called ‘catalogue’(for direct foreign investments in the industry), today has a clear eco-friendly cut, having regard for the relevant number of integrations that concern encouraged investments. Among them, companies committed to projects for the construction of equipment suitable to produce renewable energy, the manufacture of essential components for the development of energy-efficient vehicles, the production of tools for high energy efficiency and functional in the reduction of emissions in the textile sector, in addition to technologies for depuration of waters and waste recycling.

The goal of ‘cleaning’ the energy consumption of the Chinese will engage the country beyond the objectives defined in the twelfth five-year plan, resulting in three main steps (Feng et al. 2011):

1. By 2020: the beginning of the reduction of CO2 emissions, through progressive decarbonization of the productive structure and more intense exploitation of the gas
2. 2020-2030, reduction on a large scale of emissions in order to arrive at a level equal to those of 2005
3. 2030-2050: further reduction of emissions that should reach 50% of 1990 levels, in line with the objectives at international levels.

- It is a common belief that political leaders are now determined to steer the development of the Chinese economy toward eco-sustainable mechanisms. The fields of environmental protection, then, can produce a significant growth, and create a sort of ‘convert’ of an economy that until now caused considerable damage for which the Chinese citizens paid a high price (Gabusi 2011). In this new horizon and in the path toward a productive system less damaging to the environment, with more recycling, companies that produce more pollution and have high energy consumption are destined to succumb. At the same time, however, the relevant areas for clean energy can grow by compensating for these losses: in other words, we will witness a qualitative replacement for enterprises and production processes, and to movement of capital from the areas of high energy impact to areas of energy development and or a lower impact on the environment (Feng et al. 2011).

China presents itself, therefore, as a machine in the race toward a deep restructuring of its industrial fabric, economic and social, with a turn to green energy that is unparalleled in any other country in the world. In this view, there were numerous visitation and updates of targets at an institutional level: in 2014 it was objective of achieving, by the end of 2017 70 GW of photovoltaic power and 150 GW of wind power (National Development and Reform Commission, May 2014). In other words, by 2017 the Country believes to be able to cover with renewable energy 3% of its electricity demand, triggering a virtuous process that will be able to find definite fulfillment with the approval of the thirteenth five-year plan, already in the offices of the mandarin authorities. The slowdown in the use of coal can lead to ‘save’ resources for an amount equal to 9 point of GDP to incest in low-carbon activities and partial recovery of environmental damages, substantial and sometimes irreparable, produced by uncontrolled growth (Green et al. 2014).

Many of the objectives of the twelfth five-year plan have been achieved, especially as regards GDP growth, the development of the service sector within the global economy of the country, as well as the strengthening of the educational system and the growth of investment in research. Furthermore, China has been heavily involved in the implementation of environmental policies that have led to the limitation of polluting emissions and reduced energy consumption. (Alun et al. 2018)

IV. THE THIRTEEN FIVE-YEAR PLAN FOR SOCIAL ECONOMIC DEVELOPMENT: THE PRESENT AND THE FUTURE

The thirteenth Five-year Plan for Social Economic Development (2016-2020) was defined by the Chinese news agency Xinhua as the "green" five-year plan of all time, no is part of a phase of profound transformation of the Chinese economic model, with a turned towards slower but higher quality growth, with a greater focus on domestic services and consumption. For the first time, a limit to energy consumption and new limits for energy efficiency and atmospheric pollution are introduced.

Air pollution in China is not a transitory phenomenon, but a structural one, being the consequence of China's dependence on coal as an energy source, for heating, for power generation, for industrial activity. The long-term consequences of the phenomenon are massive in terms of health: lung diseases are the third cause of death in the country, and chronic respiratory diseases are the second cause of morbidity (Seligsohn et al. 2016).

The final text of the thirteenth Five-Year Plan was approved in March 2016 by the National People's Congress and marks the entry into a controlled phase of moderate growth for the Chinese economy. This new trend is based on a preference for national consumption and on the strengthening of the service sector, rather than on exports, as was the case in the past, with the aim of giving greater emphasis to issues such as economic efficiency, social inclusion and respect for the environment (Kennedy et al. 2016).

The ten essential points of the Plan can thus be summarized:

- The Chinese economy, second in the world, will have to converge towards an average growth of 6.5% per year during the plan's coverage period (2016-2020). The annual growth rate in 2015 had already 'dropped' to 6.9%, which is, however, one of the highest growth rates in advanced economies
- The services sector will have to be strengthened to reach 56% of GDP by 2020, with a gain of almost six percentage points compared to 2015
- The growth of military spending will have to be progressively reduced, with an increase of less than eight percentage points
- The deficit must be increased up to 3% of GDP, even if this result is still considered insufficient by many analysts
- Total energy consumption below 5 billion tons of coal will
have to be maintained by 2020. Thus, the energy intensity of the industry will be massively reduced, in line with the concerns and the attention perceived in the country, towards the problem of pollution (Zhang 2016)

- The use of nuclear energy will have to be increased, while at the same time strengthening the control system
- The construction of important high-speed rail lines will start, with an increase of almost 30% in terms of kilometers. The aim is to increase civil air traffic through the construction of new airports
- The construction of important high-speed rail (HSR) lines will start, with an increase of almost 30% in terms of kilometers. The aim is to increase civil air traffic through the construction of new airports
- It is proposed to increase the per capita income growth of 6.5% per year, so as to build a 'moderately prosperous' society, as indicated by the Plan itself, to fight the widespread poverty, present above all in some areas of the country
- The elimination of the unproductive state enterprises and the downsizing of the overproduction sectors will have to be carried out
- The share of permanent urban residents on the total population should be raised to 60% (currently the percentage is 56.1). In this context, the government’s tendency is to build new cities following sustainability criteria and implementing population re-allocation policies. As an example, we can mention one of the most emblematic experiments, the Sino-Singapore Tianjin Eco-City, which is a project started in 2007 and to be completed by 2020 in partnership between China and Singapore. The project includes the adaptation to numerous environmental sustainability criteria, such as the massive use of renewable energy; advanced water purification systems, waste disposal, a transport system (Caffarena 2017). One of the priority objectives, therefore, is to increase the degree of urbanization, with the dual purpose of stabilizing the economic conditions of a significant part of the population and having the possibility of providing services to a large part of the population that still does not access it, with a consequent increase in internal consumption.

Already in the preparatory phase of the Plan there was a clear focus on five fundamental inspiring principles of the new course of Chinese history: innovation, to improve the system of growth, openness, to make China one of the protagonists of the markets and the global governance; green development, which allows the realization of satisfactory economic performances compatible with the protection of the environment; coordination, in order to ensure a coherent development of rural areas and urban areas, with a simultaneous balanced development of the various industrial sectors; inclusive growth, i.e. sharing of well-being for the entire Chinese population. With reference to this last topic, the transition to a new growth model, which is sustained by domestic consumption, requires much more than the five years on which the action of the plan is carried out. Achieving this goal requires a renewed faith of families towards the institutional system, in order to reduce the current high precautionary savings, held by families due to insufficient health coverage and the high cost of education. The expected increase in consumption must be accompanied by a congruous increase in wages, and average incomes in general, with a new orientation of consumption not already towards primary goods, but towards luxury goods, and even no longer towards goods, but towards services. But a greater weight of consumption on GDP requires a sharp rise in lower incomes, especially in areas with strong rural connotations. And the speed with which this process can be carried out will depend on the speed with which the government is able to provide the country with infrastructure. In a country with a still marked inequality between urban and rural areas, attention to urbanization is very important. China can be considered the first poor superpower in history, with thrives and overpopulated cities and countryside where individuals live below the absolute poverty line identified, at world level, equal to 1.03 dollars per day per person. There are almost 70 million poor people in the official data, of which 50 million are in rural areas (Fun et al. 2016): in this regard, the Plan proposes to lift out of poverty at least 5 million people every year.

The abolition of the one-child policy, in order to redefine the evident and dangerous demographic imbalances that have a significant impact on the premature aging of the population, will have very positive consequences on domestic consumption, also because, in terms of family economy, a traditional family, will know to be able to rely on two more arms for support during old age and can reduce family savings, diverting part of this towards new consumption and / or non-traditional investments, such as speculation on the stock exchange (Westmore 2017).

Compared to the previous five-year plans, but on the same track as these, the Thirteenth Plan emphasizes the need to protect the environment even better, to implement production methods that guarantee energy efficiency, through rational and efficient use of resources, and greater availability of green goods and services for all citizens.

The Plan’s ambitious objective is to ensure the developing and to protect the territories, through better land use, and synergistic action of urbanization, agricultural development and ecological security. Specifically, the creation of a national system of parks is prepared through the integration of the already existing areas for ecological conservation.

With reference to resources, efficient use is promoted, through recycling and conservation, and, for energy saving, we want to continue the ‘revolution’ in energy consumption already in place, encouraging the reduction of consumption in the industrial, construction, transport sectors. Increasing commitment is required from companies with high energy consumption, in order to adopt production paradigms that lead to a reduction in energy consumption, introducing stringent control systems and assessing energy efficiency (Chen et al. 2016).

Just as in the previous plans the initiative is launched ‘one hundred, one thousand, ten thousand companies’, which aims to apply the national legislation to 100 companies, the provincial legislation to the 1000 companies, and the regulations at lower levels to other companies that they consume more energy.

It is also emphasized the need to intervene also in order to other resources, such as water, soil, and mineral resources, in order to purify and reuse water, control and reduce the use of land for construction purposes, supporting at the same time the technological innovation of the extractive processes. Once again, the importance of the circular economy and the need to take action to re-use materials and resources is reaffirmed. About water pollution, maximum water consumption of 670 m3 is specifically established, which will mean a reduction in water consumption per unit of GDP of 23% over five years (D’aprile 2016).

As far as environmental governance is concerned, the Plan provides for the strengthening of environmental protection with a
collaboration of institutions, companies and civil society, to ensure an improvement in the quality of the environment: in fact, a program of interventions was formulated to prevent, and control pollution, demanding that companies comply with the expected emission standards. In this context, we will proceed to increasingly intense checks, drafting a real 'blacklist' of non-compliant companies, which will be ordered, within precise deadlines, to comply with the standards defined at the government level.

The Plan considers the protection and restoration of ecosystems to be extremely important, guaranteeing the protection of biodiversity and the provision of bio-compatible services and goods to the community. In this regard, it is planned to strengthen the conservation and protection of forest systems, with the reforestation, the protection of forests and the prohibition of exploitation of this resource for commercial purposes. There is the intention to transform marginal agricultural land into forests, prohibit grazing to protect grassland systems, strengthen monitoring of ecosystems close to water sources while tackling the problem of desertification and soil erosion (Seligsohn et al. 2016).

With reference to climate change, the commitment to control carbon emissions is reaffirmed, for active participation in actions that, globally, are being set up to combat climate change.

Measures to mitigate the action of greenhouse gases affect the effectiveness and intensification of industrial emissions controls, the promotion of a low emission development of sectors such as construction, transport, industry, the use of new technologies to this purpose, and the support of experimental programs for the reduction of carbon emissions.

As also in the Twelfth Five-Year Plan (201-2015), the intent is to promote the introduction, at the national level, of a carbon emission trading system, integrating it with accurate emission controls and subsequent performance assessment on emission standard (D’aprile 2016)

Finally, the development of "green" industries, which use environmentally friendly production methods, as well as the implementation of ecological risk control systems, is supported, in order to react more quickly to possible emergencies ecological and environmental issues that should arise (State Council 2016)

The achievement of these objectives depends on the efficiency of the energy control and prevention system by the energy intensive companies. In order to achieve these objectives, the aim is to strengthen the railway structure by creating a high-speed system for urban connections, with the promotion of green building, with the increase and strengthening of public transport of at least 30% for large or medium-sized cities. (Karplus 2016).

According to the estimates of the World Resources Institute, the new Five-Year Plan lays the foundations to reduce by 48% the levels of carbon intensity, i.e., the ratio between CO2 emissions and GDP, of the Chinese economy by 2020, compared to note in 2005 (Fan et al. 2016)

V. TWELFTH ABD THIRTEENTH FIVE-YEAR ECONOMIC AND SOCIAL DEVELOPMENT PLAN: A COMPARISON

The Twelfth Five-year Plan for Economic and Social Development focused primarily on climate change, strengthening conservation and management of resources, especially depletable ones, the development of the circular economy, with a strong emphasis on reuse and recycling, the intensification of environmental protection, the promotion and conservation of the environment, the strengthening of the water resources management system and the systems for the prevention and reduction of natural disasters. Many of these objectives have been promoted and strengthened in the Thirteenth Five Year Plan, which appears to be a logical continuation of the path already taken at the beginning of 2000 by the Chinese government.

Regarding climate change, inserted as an autonomous topic for the first time in the Twelfth Plan, government action is concentrated, in the Thirteenth Plan, on the reduction of greenhouse gases and the use of coal. Therefore, the intention is to adapt the economic cycle to climate change, with specific reference to the reduction of emissions, and with a renewed interest in the international scenario and collaboration: in other words, China wants to participate actively in the global climate governance (D’aprile 2016).

As regards the reference to the circular economy, the use of the new production paradigm is pointed out, both in the production process and in the consumption phase, with a push towards accelerating the process of reuse of resources, not only in the industrial sector. For the first time explicitly, the 13th Plan calls for particularly energy-intensive companies to be active, together with the institutions, in reducing emissions and in studying and experimenting with more sustainable production methods. (Westmore, 2017).

As regard to environmental protection, on the basis of the route already indicated by the 12th Plan, further efforts are planned to protect the environment and pursue energy efficiency, with a totally new commitment for the protection of ecosystems, through a more rational resources and greater availability, for citizens, of green goods and services: the latter reference is original, and must be read in order to increase domestic consumption. As regards, specifically, the best exploitation of the soil, the importance of starting and consolidating interventions aimed at differentiated use of the different territorial areas according to three strategies, urbanization, agricultural development, ecological security, that allow realizing a functional use of the soils themselves. For the first time, reference is made to the need to create a network of national parks, through the integration of existing ecological conservation areas (Chen et al. 2016). As regards the promotion, conservation, and ecological restoration, it is important to underline the strengthening of the synergistic action between institutions, businesses and citizenship: in this sense it is clear the orientation towards a more participated economy, which, from the purely economic point of view, translates into a transition to a true market economy.

With the 2015-2020 plan, we start talking about environmental risk, providing for investments to support systems for the prevention and control, verification and assessment of this risk in terms of damage to the environment and health, with attention to nuclear safety, to which you want to refer to most as "clean" energy. This includes the provision of interventions for the protection and restoration of ecosystems, with the guarantee of the enhancement of biodiversity, to provide an increasing number of ‘green’ services to the community. In particular, the Plan refers to the safeguard and conservation of the forest ecosystem, to be implemented through reforestation, the protection of virgin forests, and the transformation of marginal agricultural land into forests. Finally, referring to the most
rational management of water resources, felt like an urgent need, a maximum ceiling for water consumption is inserted (Chen et al. 2018).

Once again, the change of direction by the political leaders to the development of the Chinese economy emerges, which, at least at the programmatic level, will have to take place with greater attention to quality than to quantity. It also highlights the recognition of the economic benefits that can derive from the use of alternative energy, as shown by the huge investments made in clean energy such as wind and solar, which have led the country to achieve world records of installation: in 2015, in fact, China has become a world leader in the production and exploitation of solar energy (Henderson et al. 2016). To facilitate the transition to renewable sources, the plan includes major investments in infrastructure such as ultra-high-voltage networks, smart grids, and distribution networks.

In the thirteenth Development Plan, for the first time, the reference is made to the will to develop green, environmentally friendly industries that use innovative technologies, operating in an energy saving regime.

Unlike the previous plans, more specific binding targets are defined, and for the first time, a maximum cap on the total energy consumption is defined, equivalent to 5 million tons of equivalent coal (Seligoehn et al. 2016).

REFERENCES


vi. D’Aprile A.,(2016) Climate and Energy Targets in China’s 13th Five Year Plan, International Climate Policy, 40

vii. Feng et.al. China’s Low Carbon Industrial Development Strategy. Report to the China council for international cooperation on environment and development (CCICED) 2011 Annual general meeting


x. Gabusi G. (2011), Le ambizioni del nuovo piano quinquennale, Orizzonte Cina(IAI) 11(4)


xiii. Karplus V. (2016), China’s Thirteenth Five-Year Plan Paves Way for a CO2 Emission Peak, MIT ChinaFAQs


xvi. Kennedy S., Johnson C., (May 2016). Perfecting China Inc. The 13th Five Year Plan CSIS


xxii. Yuè C.,(January 2014) Lo spettro del collasso ambientale, Orizzonte Cina