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A Few Words from Editor

Dear SCCAEPA Online Journal Readers:

In this issue of the Southern California Chinese American Environmental Protection Association (SCCAEPA) Online Journal (ISSN 1944-8945), we published a total of 10 abstracts that were presented in our Symposium on Global Emerging Environmental Challenges and Government Responses held in August 2011 in San Gabriel. These abstracts address primarily water quality issues. Hope we all enjoy it.

In addition, we continue the column of "Lost in Translation" in this issue for readers who might be interested in language translation since this journal does accept both English and Chinese papers. From time to time, we all face the challenge how to translate the language which we think we understand well into the other language. In the column, I put in some original English or Chinese phrases and then provide some translations obtained from anonymous contributors. Please join me to comment on those translations and write to us what you think the phrases should be translated. You are also encouraged to contribute your example of sentences. This is for your leisure reading.

To sustain the journal, we need members' contributions. I invite you to submit your work and written materials from your experience. To make things easier, I would like to suggest short articles that can be modified from your conference presentations and slides. The Journal is also open to outside of our association.

Enjoy!

Sincerely,

Yue Rong, Ph.D.
Editor-in-Chief
SCCAEPA Online Journal
November 2012
sccaepa2011@gmail.com

Disclaimer

The company names and any trade names of a product mentioned in the articles of this journal do not reflect the endorsement of the Southern California Chinese American Environmental Protection Association (SCCAEPA).

The Water Reuse and Energy Nexus: Research Contributions by the National Science Foundation

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Water and energy are inextricably linked. Water is used in almost every aspect of energy production. In 2000, thermoelectric power generation [coal, oil, natural gas, and nuclear] accounted for 39% of all freshwater withdrawals in the US. Consumption of water for electrical energy production and distribution could more than double by 2030. This is equal to the entire domestic water consumption in the US in 1995. Coal accounts for 52% of US electricity generation, and each kWh generated from coal requires withdrawal of 25 gallons of water. The US is currently the major consumer of energy, but many other countries are rapidly expanding their energy consumption. Some cleaner energy alternatives – including biofuels and coal with carbon sequestration – will significantly increase fresh water demands.

Compounding this problem is the fact that both water and wastewater treatment and pumping and distribution/collection require large amounts of energy, which is projected to greatly increase in the future. Achieving water sustainability through water reuse is a promising concept, but many of the treatment options, such as use of membranes or distillation, are intensive energy users. This talk gives an overview of the water-energy nexus and reasons for why it is becoming a major concern. It will also address the impacts of climate change on water resources. The presentation will include an analysis of water sustainability problems in Xinjiang Province, China. The talk will conclude with examples of projects the National Science Foundation is funding in an attempt to study and hopefully alleviate some of these problems.

Design of Chinese Water Pollutant Discharge Permit System

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Abstract

Although there are a lot of water pollution control policies in China, there is no core policy, which results in the poor performance of policies and high cost of enforcement. Current major point source discharge control policies, such as Pollution Charge system and the Total Emission Control policy, due to the designing flaws, basically cannot achieve the goal of “point sources continuous meeting discharge standard.”

To enforce Water Pollutant Discharge Permit system (WPDPS) is explicitly stipulated in the People's Republic of China Water Pollution Control Act (2008). The ultimate goal for WPDPS is to protect the water body health and population health; the immediate objective of it is to ensure the point sources to meet discharge standard continuously. Effluent limitations are the core of WPDPS. According to the U.S. experience, the limitations include technology-based effluent limitation and water quality-based effluent limitation. The current WPDPS in China should base on the technology-based effluent limitation. WPDPS is a "packaged" system of the existing related policies, involving almost all management and discharge request about point sources. In a sense, it plays the role of compliance file and management platform. Through the implementation of WPDPS, the requirements for point sources discharge will be more specific and clear, and the quality of discharge information submitted by permitee will be ensured. Point source discharge control by government can be launched on the base of discharge permit; the enterprises’ environmental management works can be carried out through the permit to meet the requirement of continuous meeting the discharge standard.

Current pollution discharge management system in China is in the mode of "central government - local government – sources". However, due to the regional externalities, local governments lack the regulatory initiative, which resulting in the failure of point source discharge control. Based on external characteristics of water environment management, the central government should assume more responsibility in the permit management system design, and classified management of point sources will be implemented according to their external size. Ministry of Environmental Protection of the People’s Republic of China (MEP) takes charge of the permit for the point source directly discharging into the natural water; Provincial environmental protection departments are commissioned to manage large point sources, and the small ones are managed by city and county environmental protection departments also commissioned by MEP; City government is responsible for management of the point source that discharges to the sewage treatment plants.

The core idea of environmental policies' management mechanism is to make procedure properly, which includes information mechanisms, funding mechanisms, monitoring and inspection mechanisms, and enforcement mechanisms for violations. Information mechanism is designed for information gathering, information processing, information transmission, information storage, information use (decision-making and publication) and information evaluation. The adequacy and reliability of the permit application information will be ensured by the Registered Environmental Management Engineer system, and the permit compliance database will reduce the cost of information acquisition and transmission under the premise of ensuring the information quality. For funding mechanism design, local governments will receive permits management funds from central government according to the agreement between the central and local governments. The permittees should also pay a certain amount of permit management fee based on their actual pollutant discharge quantity. The funds will be used to cover the expenditures for permit administration, research, monitoring and inspection, training and so on. Monitoring and inspection for permits compliance involving self-monitoring conducted by permittee and compliance monitoring and inspection conducted by permit compliance supervision departments will be conducted according to monitoring programs. The third-party monitoring agencies can be introduced to ensure the fairness and efficiency. Monitoring and inspection mechanism is designed not only to provide the basis for the verification of compliance, but also to provide appropriate incentives for local governments' strict supervision, the enterprises' strict implementation of self-monitoring program and truthful providing their discharge information, and registered engineers' strict complying with professional requirements. Enforcement mechanism for violations is designed to maintain a sufficient deterrence to potential noncompliance. Imputation for Provincial Environmental Protection Bureau is based on the agent-agreement; punishment for permittees uses the approach of "rate and multiple combined with dynamic penalty"; punishment for registered environmental management engineers is implemented in accordance with related industry standards.

Expected results: with the implementation of WPDPS, the supervision for point sources discharge will has a reliable basis; effluent limitations will be implemented effectively; the invalid game between central and local governments will be avoided; environmental regulatory failures of local government will be reduced, and the water pollution externalities can be internalized effectively; information distortion caused by externalities can be corrected, and the polluters will be encouraged to submit real discharge information as well as the environmental protection departments and statistical departments acquiring more and better discharge data; local government will perform its duties efficiently and disclose the truthful information on discharges; Registered Environmental Management Engineer system and marketization of environmental monitoring will not only improve the enterprises' environmental management capacity and the monitoring efficiency and fairness, but also reduce the management costs. Coordination and integration of relevant policies and the WPDPS will reduce policies conflicts, improve environmental management efficiency and reduce the management costs. Suggestion are as follows: Replace Pollution Charge Policy for collecting permit management fees; Time Limited Governance system as part of the permit punishment mechanism will be implemented through the permit system; the responsibility of

environmental protection supervision and inspection personnel is performed by registered environmental management engineers; discharge reporting is the basic content of WPDPS; WPDPS is the follow-up interface policy for EIA system and "Three Simultaneous" system; Total Pollutant Control policy is implemented depends on the WPDPS; discharge monitoring is implemented according to monitoring program; permit is the basis of environmental statistics.

Suggestion for Water Pollutant Discharge Permit system improvement: specific regulation and technical specification for WPDPS implementation should be made as soon as possible; the assessment, update and improve mechanism for WPDPS should be established and more professionals should be trained. Currently, the management range and procedure of WPDPS should be implemented step by step according to stakeholders' comments and the environmental protection department management capacity. Classified management of point sources at different levels will be implemented, and the large point sources with a greater impact on water quality will be brought into WPDPS firstly. With the improvement of management capability and experience, the coverage of WPDES will be expanded gradually and the management procedures and requirements for it will be refined continuously.

Groundwater Modeling and Pollution Remediation

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Abstract

Groundwater is only an important water resource, but also it is a part of ecosystem and environmental system. In this paper, author introduces the achievements in groundwater resource modeling such as Heihe Basin of northwestern China, in rock hydraulics such as Xiaowan Hydropower Station by using model of coupled seepage and stress fields, model of coupled seepage and chemical process in Jinduicheng tailings dam, and remediation technology and modeling of groundwater pollution. Finally, author introduces optimal design methods of groundwater contaminant monitoring and their application.

Energy Saving through Superior Design and Process Control

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San Jose / Santa Clara Water Pollution Control Plant (WPCP) is a 167 MGD advanced wastewater treatment facility receiving full tertiary treatment along with biological nutrient removal. Built over 50 years ago, significant part of the plant facility requires major rehabilitation or replacement due to severe corrosion and deterioration. One of such project was the replacement of corroded diffusers, air headers, and isolation bulkhead gates in the nitrification aeration influent and mixed liquor channels.
This presentation will discuss project background, condition assessment, development and evaluation of options, design basis, and construction. The recommended cost-effective design provides improved operation flexibility, energy efficiency, and longevity of the aeration system. The project was implemented in a fast track mode with feasibility study completed in February 2009, detailed design completed in May 2009, and construction completed in February 2010. The new channel aeration system has now been in operation over one year and has proved to be robust and energy saving.

Treatment of food processing wastewater in a full-scale jet biogas internal loop anaerobic fluidized bed reactor

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A full-scale jet biogas internal loop anaerobic fluidized bed (JBILAFB) reactor, which requires low energy input and allows enhanced mass transfer, was constructed for the treatment of food processing wastewater. This reactor has an active volume of 798 m3 and can treat 33.3 m3 wastewater per hour. After pre-treating the raw wastewater by settling, oil separating and coagulation-air floating processes, the reactor was operated with a relatively shorter start-up time (55 days). Samples for the influent and effluent of the JBILAFB reactor were taken and analyzed daily for the whole process including both the start-up and stable running periods.

When the volumetric COD loading fluctuated in the range of 1.6–5.6 kg COD m-3 day-1, the COD removal efficiency, the volatile fatty acid (VFA)/alkalinity ratio, the maximum biogas production and the content of CH4 in total biogas of the reactor were found to be 80.1 ± 5%, 0.2–0.5, 348.5 m3 day-1 and 94.5 ± 2.5%, respectively. Furthermore, the scanning electron microscope (SEM) results showed that anaerobic granular sludge and microorganism particles with biofilm coexisted in the reactor, and that the bacteria mainly in bacilli and cocci were observed as predominant species. All the data demonstrated that the enhanced mass transfer for gas, liquid and solid phases was achieved, and that the formation of microorganism granules and the removal of inhibitors increased the stability of the system.

GREEN REMEDIATION AND REMEDIAL PROCESS OPTIMIZATION

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Green remediation considers the environmental impact of an investigation and remedy activities during the remedy selection process. Incorporating green remediation into environmental restoration requires evaluating activities and selecting a remedy that minimizes the environmental impact and provides the maximum environmental benefit to the life-cycle cleanup. Green metrics to be considered include energy requirements, natural resources to be utilized and/or impacted, pollutants to be utilized or created, the impacts of the remedy, and the remedy effectiveness versus the environmental impact. Best management practices were identified to address these metrics, and the corresponding data needs and action items were developed under various phases of remediation.

Remedial Process Optimization (RPO) is a systematic process of evaluating the performance and effectiveness of existing site remediation systems and proposing cost effective solutions toward site closure. Optimization of the initial remedial design tends to save the most in capital cost and draw the most attention. Continuous optimization becomes necessary when site conditions, remedial objectives, and regulatory thresholds changes. RPO focuses on optimizing site cleanup and long-term monitoring and is becoming more attractive and even necessary as treatment systems become aged and the desire to close sites accelerates.

Green remediation objective is to maximize net environmental benefit from cleanup action over system lifetime. RPO objective is to achieve cleanup goals for minimum life-cycle cost. The RPO to minimize life cycle cost often also results in green and sustainable practices. Several case studies are presented and demonstrated for green remediation through RPO.

Mercury Immobilization in Soil and Groundwater Using Iron Sulfide Nanoparticles

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Mercury is one of the most persistent and bio-accumulative contaminants. Once it is released to the environment, mercury can be transformed to methylmercury by bacteria, which is a potent neurotoxin and can accumulate along the aquatic food chain and pose serious threat to human health. An innovative technology has been developed to immobilize mercury in contaminated soil and groundwater using iron sulfide nanoparticles. The innovative nano-scale material was prepared using a low-cost, food-grade, and bio-degradable carboxymethyl cellulose as the stabilizer to prevent particles from agglomeration. The diameter of the iron sulfide nanoparticles was 38.4±5.4 nm based on Transmission Electron Microscope analysis. The nanoparticles can remain suspended and reactive for several months. Laboratory studies demonstrated that 1) the iron sulfide nanoparticles can effectively immobilize mercury in contaminated groundwater and soil, 2) after reacting with iron sulfide nanoparticles, mercury can be transformed to mercury sulfide which is extremely stable in the environment, 3) iron sulfide nanoparticles are mobile in a sand column indicating that iron sulfide nanoparticles may be injected into the subsurface as an in-situ remediation technology. In this presentation, background of mercury contamination, characterization of iron sulfide nanoparticles, laboratory results of mercury immobilization, and costs related to using this technology for mercury immobilization will be discussed.

The first groundwater recharge plan in Taiwan, the simple facility of groundwater recharge on Cho-Shui River

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Abstract

The difference of water resources between wet and dry seasons is enormous due to hydrological features, which can significantly result in an imbalance of water supply and demand. Stability is a key factor in making groundwater an important water resource. In the southwestern part of Taiwan, which is the primary agricultural production area, groundwater is an indispensable irrigation water supplement. However, the groundwater level has declined and has resulted in land subsidence because of long-term over pumping of groundwater in this area. How to retard the rate of land subsidence and conserve the aquifer in this area has become the most important concern of the local governments. The first groundwater recharge plan (the simple facility of groundwater recharge) regarding the channel of the Cho-Shui River was implemented in 2011. A check dam (900 m long and 3.5 m high with a 70-ha blocking area) was built across the channel of the Cho-Shui River to block water and to extend the infiltration time in order to increase groundwater recharge. According to the on-site survey, the facility produces groundwater recharge of about 1.8 × 105 tons per day when operating. The monitoring data obtained nearby this facility showed that the groundwater level has been gradually inclining because of a water mound created by this plan.

Keywords: groundwater recharge, water blocking, Cho-Shui River

Challenge and Innovation: Sustainable Remediation of Chlorinated Solvent Contamination Sites
挑战和创新: 论可持续的含卤有机溶剂污染场地修复

Deyi Hou (侯德义)

Parsons Corporation

Abstract

Chlorinated solvents are the most prevalent organic contaminants in soil and groundwater. For instance, Tricholoroethene (TCE) was found at 82% of Superfund sites in the United States (US). Other chlorinated solvents, including carbon tetrachloride and tetrachloroethylene, are also widely spread. The containment and cleanup of chlorinated solvent contamination can be very costly. In the US, the cleanup of chlorinated solvent sites could cost tens of billions of dollars. Because chlorinated solvent can exist in dense nonaqueous-phase liquid (DNAPL) state, the complete removal of these contaminants can be not only expensive, but also time consuming. Some chlorinated solvent sites are estimated to take hundreds of years to cleanup.

This presentation discusses the challenges that we encounter in the remediation of chlorinated solvent sites, the innovative solutions that have been proposed and used, and the life-cycle sustainability of real-life engineering practices. Remediation experiences at 7 chlorinated solvent sites are discussed. The historical and future remediation cost at these sites is estimated to exceed $250MM. The technologies involved in these remediation operations included soil excavation and off-site disposal, on-site ex-situ aeration, in-situ soil vapor extraction, ex-situ soil vapor extraction, groundwater extraction and treatment, dual-phase extraction, enhanced in-situ bioremediation, passive reactive barrier, in-situ soil mixing with zero-valent iron, bioaugmentation, phytoremediation, etc. This presentation will focus on a few remediation technologies to give insight to the “sustainability” of the overall remedial processes.

論廣元城市森林建設規劃

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摘要：調查分析廣元創建國家森林城市的重要性和目的意義、生態經濟文化條件與建設基礎、制約因素與存在問題,規劃的指導思想、建設目標、佈局。對城市成帶、成團的森林休閒綠地不足;大樹移栽多，有針對的綠化防污、防噪以及森林文化創意打造少。提出對策和措施建議。城中多營建喬灌草的森林單塊、片塊，進行城市森林生態功能管理，提高單位面積生態、經濟與文化生產力;加強資金監管，健全綠化機制;推進廣元城市森林建設再上新境界。
關鍵詞：林學,城市森林,規劃,問題與對策,廣元

On Guangyuan Urban Forest Construction Planning

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Abstract: This paper researches and analyzes the importance, purpose and significance for Guangyuan to create a national forest city, ecological, economic and cultural conditions and construction basis, restraining factors and existing problems, and guidelines, construction objective and layout of the planning. Aiming at inadequate belts and stretches of forest and green land for relaxation in the city, excessive transplanting of big trees, and insufficient target-oriented anti-pollution and anti-noise greening and forest culture creativity, this paper put forwards countermeasures and suggestions, including construct as many stretches and parcels of forest of trees, shrubs and herbs as possible, and manage ecological function of urban forest to improve ecological, economic and cultural productivity of unit area; strengthen fund supervision, and perfect the greening mechanism; and promote Guangyuan urban forest construction to reach a new level.

Key words: forestry, urban forest, planning, problem and countermeasure, Guangyuan

國家森林城市是指城市生態系統以森林植被為主體，城市生態建設實現城鄉一體化發展，各項建設指標達標並經國家林業主管部門批准授牌的城市。自 2004 年創建“國家森林城市”活動開展以來，已有貴陽、瀋陽、長沙、成都、廣州、包頭、許昌、臨安、新鄉、阿克蘇等 22 個城市先後被國家林業局授予“國家森林城市”。廣元市 2009 年起，規劃用三年時間創建成為國家森林城市，力爭 2011 年創建成功；2011 年 10 月至 2016 年 12 月為鞏固提高階段。為落實科學發展觀，加快生態廣元建設步伐，加速推進災後恢復重建，盡快把廣元建設成為嘉陵江上游的生態屏障和川陝甘三省結合部環境優美、生態良好、舒適宜居的區域中心城市和經濟文化生態強市，促進全市經濟社會又好又快跨越發展。

1 廣元生態經濟狀況與創建國家森林城市的歷史必然性。

1.1 廣元“創森”的重要性和目的意義。
推進森林城市建設，是生態文明建設的重要載體，是美化國土、治理山河、維護和改善生態環境的一項重大戰略措施。按照“城區園林化，郊區森林化，道路林蔭化，水系綠色化，庭園花園化”的城鄉一體化思路，讓森林走入城市、讓城市擁抱森林已成為提升城市形象和競爭力，推動區域經濟發展的新理念。建設森林城市，對改善廣元市的外部形象，創造良好的招商引資環境，開發生態旅遊，發展地方經濟，促進農民增收，都將起到積極的促進作用，對“生態廣元”建設，構建和諧社會都具有十分重要的現實意義和深遠的歷史意義。體現災區人民恢復生態重建家園的強烈願望。[1][2]

1.2 廣元“創森”的生態經濟文化條件。
廣元位於東徑 104°36'～106°45'、北緯 31°31'～32°57'，是四川省的北大門，北與陝西、甘肅兩省交界，西與綿陽，南與南充，東與巴中等市相鄰。地勢北高南低，山脈由西向東傾斜，最高海撥 3837 米，最低海撥 352 米。境內平地佔 4.2%，淺丘佔 2.3%，江河水面佔 4.83%，山地佔 88.67%。全境跨四大山脈，摩天嶺—米倉山橫亙市北，龍門山橫插市西，盆北弧形山脈分佈市南。亞熱帶濕潤季風氣候區。境內地層發育較好，除缺失第三系外，從震旦係到第四系均有出露，各時代地層，呈自北而南，由老到新有規律分佈。河流均為嘉陵江水系。基帶植被為常綠闊葉林，由南向北過渡到常綠、落葉闊葉混交林和針葉林，原生的天然植被，其野生植物，雖遭歷代自然和人為損耗，但仍較豐富，且種類繁多，分佈面廣。其種類全市現有木本植物 320 種（其中喬木 184 種，灌木 104 種，藤本 22 種，竹類 10 種），草木植物 255 種，蕨類植物 24 種。城區周圍主要是飛播與人工營造的馬尾松林與柏木林。馬尾松林多為單純林，林中向陽空地伴生灌木有火棘、小果薔薇等。柏木林多為疏林，退居於低山中上部，林內混有化香、油桐、山合歡、鐵仔、黃櫨等。廣元城名始於元代，但是，早在原始氏族社會即有先民在此聚集生活，留下很多古文化村落。廣元古樹數量眾多，共有古樹名木 78 種，12025 株，國家一級古樹 6751 株，二級古樹 2370 株，古柏佔 84%.2009 年全市 GDP270.48 億元，人均 9874 元，三次產業結構比重為 26.8:33.9:39.3。科技對經濟增長的貢獻率達到 26.1%。城市建設不斷加快，城鎮化率提高到 28.7%。城市面貌和品位明顯提升，先後被評為“省級山水園林城市”、“中國人居環境範例城市”、“中國優秀旅遊城市”、“全國衛生城市”、“全國首批低碳中國貢獻城市”、“四川省省級歷史文化名城”等。中心城區面積達 28.2 Km2，城區人口 26 萬人，人均公共綠地面積 8.55 m2。交通、能源等基礎設施不斷改善。廣元機場、綿廣高速公路先後建成，市縣公路主骨架基本形成，通鄉通村公路得到改善。紫蘭壩水電站建設進展順利，城鄉電網改造取得實效，能源基礎得到加強。廣元城區和各區、縣環境空氣中二氧化硫、二氧化氮（氮氧化物）年日均值均達到國家空氣質量二級標準，廣元城區環境空氣中二氧化硫、二氧化氮年日均值均達到國家空氣質量一級標準，可吸入顆粒物日均值達到國家空氣質量二級標準的天數大於 60%。嘉陵江、白龍江、清江河、

東河、羊木河等水質總體較好，均達到規定的水域標準，嘉陵江乾流出市境斷面水質達到規定的Ⅲ類水域標準。部分河流如南河、聞溪河、長灘河等流域城區河段水質較差。城市區域環境噪聲質量較好，城區道路交通噪聲污染狀況基本保持穩定。城區各功能區噪聲污染狀況為遞減趨勢，城市噪聲污染源主要為交通噪聲。按污染程度排序為：交通幹線兩側區>居、商、工混合區>工業區>居住、文教區。全國第二次水土流失遙感遙測廣元市水土流失面積為 8370.04km2，佔總面積 51.3%。季節性大風、冰雹、暴雨洪澇等氣象災害發生頻繁；秋、冬、春季受西北氣候控制，夏季受西太平洋高壓控制，形成季節性乾旱。[3]

1.3 廣元森林城市建設的基礎。

廣元各項重點工程項目如飛播造林、天保工程、退耕還林工程、德援項目、城周綠化和綠色通道建設、義務植樹活動的開展有效地改善了城鄉生態環境，大大提高了人們的生活質量，帶動了房地產業、旅遊業、農家樂等產業發展，有力地推動了“生態廣元”建設。 2009 年全市林地面積為 1000317.3 公頃，佔總面積的 61.3%；森林面積 852897.8hm2，森林覆蓋率 52.6％，遠遠高於 2009 年第七次全國森林資源清查結果的我國森林覆蓋率 20.36％，也同樣高於國家森林城市，國家文明城市要求的城市森林覆蓋率。森林總蓄積 4864.3 萬 m3，其中，公益林總蓄積 2373.56 萬 m3，商品林總蓄積 2462.89 萬 m3。單位蓄積量為 48.6 m3 /hm2 低於我國平均水平 70.2 m3 /hm2 林分質量不高，低產林面積較大。已建國家級、省級、市級森林公園、野生動植物保護區及濕地保護區 24 個，面積 227127 hm2. 。城市建成區綠地用地面積達 1200 公頃，綠地率達 38.5%，綠化覆蓋率達 39.5%，人均公園綠地面積達 9.97 m2；城市道路綠化率達 98%以上，主幹道綠地率超過 25%。

1.4 廣元“創森”的製約因素與存在問題。

森林資源總量不足，地區差異明顯，產業發展不理想，森林管護能力有待提高。全市森林蓄積量偏低，林分質量有待進一步提高。市內綠地面積大，市中心單位空間綠量較低。城鄉綠化發展不平衡，中心城區綠地分佈不均。多數市民出門 500m 內，沒有休閒綠地。 [4] 城市森林體系尚未完善，森林防護功能體現不足。經濟發展水平不高；環境形勢依然嚴峻，科學技術水平亟待提高，管理體制尚待進一步理順。 [4][5][6] 一是在城區綠化上，城市成帶成團的森林景觀較少，廣場綠化喬木樹種偏少，綠化樹種比較單調，配置不夠合理；單位綠化整改和小區拆牆建綠任務還十分艱鉅。二是在城周綠化上，市主城區城周農耕地面積大，在視野範圍內森林景觀不夠突出。三是在通道和鄉村綠化上，公路和水系綠化斷帶多，與林水相依、林路相連的目標相比還有差距，村鎮綠化和鄉村公路綠化相對滯後。四是在森林病蟲害防治上，人員、物資等保障與城鄉森林面積增長不完全協調。五是在經費保障上，城市綠化、城周綠化和兩網綠化的項目整合力度不夠，規劃實施中：規劃頻繁，堅持實施少；綠化一哄而起多，園林資金監管少。喬木多，喬灌草結合少；落葉多，常綠樹種少；大樹移栽多，規範化園林用苗少；移植多，管護和長期定植養護少；單純強調綠量的多，有針對的綠化防污、防噪以及森林文化創意打造少。

2. 廣元創建國家森林城市規劃的指導思想及建設目標。

2.1 指導思想。
圍繞“堅持科學發展，構建和諧廣元，實現新的跨越”主題和目標，深入貫徹《中共中央、國務院關於加快林業發展的決定》，按照“以人為本，人與自然協調發展”的發展思路，以科學發展觀為統領，以建設最佳的人居環境為目標，以增強資源環境承載能力和可持續發展能力為核心，以科技進步、體制機制創新為動力，以生態經濟、生態環境、生態文化、生態人居和生態支撐體系建設為重點，結合廣元歷史文化名城的優勢，全面提高廣元市市域生態環境建設的整體水平，改善城市環境，形成山、水、林為一體的城市森林生態系統。[6]

2.2 規劃原則。
生態、經濟、社會效益兼顧；政策扶持，利益驅動；統籌城鄉規劃，健全森林生態網絡；突出本土特色，提高生態穩定性。規劃範圍：包括全市所轄蒼溪縣、劍閣縣、旺蒼縣、青川縣和市中區、元壩區、朝天區等七縣(區)。規劃總面積 1.6314 萬 km2，人口 306.21 萬。

2.3 規劃期限。
《廣元市創建國家森林城市總體規劃》以 2009 年為基準年，分為二期進行建設：2009 年至 2011 年為創建期， 2012 年至 2016 年為提高期。規劃目標，到 2016 年，在全市建成資源豐富、佈局合理、功能完備、優質高效、管理先進、文化繁榮的城市森林體系，實現強化生態安全保障，提升產業效益，弘揚女皇綠色文明的總體目標，為建設山川秀美、人與自然和諧、經濟社會可持續發展的生態城市奠定基礎。屆時廣元市將建成功能完備的山區、丘陵、城市綠化隔離地區三道綠色生態屏障，形成城市青山環抱、市域綠水環繞、市區森林環繞、郊區綠海田園的生態景觀，實現強化森林系統功能，健全森林實現強化生態安全保障，提升林業產業效益，弘揚巴蜀女皇綠色文明的總體目標，為建設山川秀美、人與自然和諧、經濟社會可持續發展的生態城市奠定基礎。發展近自然林，提高資源質量；活躍森林旅遊，繁榮特色產業；加強災害監控，保障森林安全；傳承女皇文化，建設森林城市。階段目標：建設前期（2009-2011 年）；建設後期（2012-2016 年）。

2.4 具體目標。
結合《國家森林城市評價指標》與廣元市的實際情況，實現國家森林城市的具體目標是：（1）森林覆蓋率（國家標準 35%），在確保城區綠地及森林穩步增長的基礎上，進一步使城市森林佈局合理、功能健全、景觀優美。（2）城市建城區綠化覆蓋率達到 35%以上，綠地率達到 33%以上，人均公共綠地面積達到 9 m2 以上，城市中心區人均公共綠地達到 5 m2 以上。積極開展建築物、屋頂牆面、立交橋等立體綠化。（3）四縣三區所轄郊區森林覆蓋率因立地條件而異，山區達到 60%以上、丘陵區達到 40%以上。（4）公路、鐵路等道路綠化注重與周邊自然、人文景觀的結合與協調，綠化率達 80%以上，形成綠色通道網絡。（5）江河、湖庫、渠道等水體沿岸注重自然生態保護，水岸綠化率達 80%以上。在不影響行洪安全的前提下，採用近自然的水岸綠化模式，形成城市特有的風光帶。（6）突出鄉土樹

種的培育應用，鄉土樹種數量占城市綠化樹種使用量的 80%以上；以鄉土樹種為主，通過喬灌藤草等植物合理配置，營造各種類型的森林和以樹木為主體的綠地，形成近自然森林為主的城市森林生態系統，城市森林的自然度不低於 0.5。

2.5 規劃總體佈局。
廣元創建國家森林城市是以“山水園林”為基本理念，並發展生態林業保障生態安全，發展效益林以滿足多種需求，發展人文林業以弘揚綠色文明。根據上述廣元林業發展理念和總體規劃的基本原則，結構佈局為：北部山區生態保護——特色林業產業發展區；城周通道景觀建設——城鄉一體化優先發展區；南部低山丘陵水土保持— —工業原料林發展區。

2.6 佈局框架。
廣元市創建國家森林城市建設的空間佈局可以概括為：“一核、兩網、三星、四地、五組團”。（1）一核。即為廣元市的中心城區。包括東壩、雪峰、嘉陵、南河、上西、河西、迴龍河、楊家岩 8 個辦事處和工農鎮。主要任務是城區綠化，行道、廣場、單位庭院、公園、風景區綠化。對城市水系和濱水地帶的整治、綠化、美化，是城市森林綠化建設的重點。（2）兩網。即廣元市域範圍內的主要路網與水網。主要任務主要公路、鐵路通道綠化，河床及堤岸整治、濱河綠化，濕地公園建設。通過路網、水網綠化建成森林生態景觀線。（3）三星。即廣元市城區近郊的元壩、寶輪、朝天三個衛星集鎮。主要任務是城鎮綠化；建成廣元市城區近郊森林生態功能區。（4）四地 。即廣元市域範圍內青川、劍閣、旺蒼、蒼溪四縣城的建成區城區綠化；建成廣元市遠郊森林生態防護區。（5）五組團。圍繞廣元市中心城區建設東西南北中五大森林組團。工程建設規劃：城區綠化建設工程；“兩網”綠化建設工程；山地森林保育工程；自然保護區、森林公園等生態旅遊建設工程；水源涵養林建設工程；鄉村生態旅遊和綠色家園建設工程；生態文化林建設工程；林產工業發展工程；森林災害防控建設工程；科技創新平台建設工程。

2.7 投資估算及分期建設規劃。
森林城市建設投資估算，廣元市國家森林城市建設總投資為 828083.24 萬元，根據建設規劃分為創建期（2009-2011）投資 593491.87 萬元，佔項目總投資的 71.67％和提高期（2012-2016 ）投資 234591.37 萬元占項目總投資的 28.33％。森林城市近期綠地建設規劃（2009-2011）；森林城市遠期綠地建設規劃（2012-2016）。

2.8 保障措施。
加強領導和監督，強化創建目標考核和工程質量責任制；創新管理機制，加大監督力度；完善林業專業合作經濟組織。制定創建國家森林城市建設的政策和規範性文件，依法保障森林城市建設，營造森林城市創建的良好氛圍；技術支撐，加快林業科技創新體系建設，完善科技推廣體系建設，推進林業標準化體系建設。用城市發展戰略，解決“創森”建設資金問題；科學安排“創森”計劃，充分發揮財政資金的引導作用；堅持“人民城市人民建，森林城市為人民”的原則，多方位、多層次、多渠道籌集資金、共同搞好“創森”活動。加大財政投入，市場化資金籌措，建立專項建設資金。[7]

3. 廣元創建國家森林城市的對策。

3.1 建設嘉陵江上游生態屏障，堅定不移地強化城鄉生態建設，抓好災後生態恢復、重建、振興。
堅持人與自然共融、城市鄉村共建、生態經濟共贏、全民參與共享，“森林進城，園林下鄉”，遵循近自然原則；在空間佈局上，城鄉統籌推進；在內涵提升上，做好結合文章；在推進方式上，產業促進；在傳承文化上，弘揚生態文化。

3.2 改變城市森林不成行，不成團，不成塊的單調模式，提升城市林業生態工程建設水平。
構建城市、近郊、遠郊三位一體生態系統；建設林網、路網、水網三網合一主體景觀；建成鐵路兩側 30—50 米寬的林帶，高速公路、國省道兩側 5—10 米寬的林帶，縣道和鄉村公路兩側 5 米以上的林帶，形成帶、網、片、點相結合，層次多樣、結構合理、功能完善的綠色長廊；建設以嘉陵江、白龍湖等江、庫為主的水網林網相依的水源防護林，江河兩岸、水庫四周、渠道兩側因地制宜建設較為寬闊的林帶，使林草植被覆蓋率達到 90%以上，形成自然式綠化的城市森林水系。

3.3 進行城市森林生態功能管理，注重喬灌草的綠化美化，提高城市森林撫育管理質量和單位面積生態與經濟生產力。
提升森林城市生態功能、經濟效益、文化內涵，深入挖掘女皇文化、蜀道文化、森林文化、茶文化等特色文化的潛力，把山、水、森林特色和歷史文化有機結合起來。[8]

3.4 加強規劃與實施管理，有針對性的城市森林經濟、文化創意、生態功能的綠化打造；加強綠化及園林資金監管，建立健全城鄉綠化長效機制。
以大力發展現代林業為突破口，以建設城市森林為載體，大力發展森林旅遊、木本油料、生物質能源等林業特色產業，發展林業低碳經濟。不失時機的推進貧困山區、地震重災區--廣元城市森林建設，力爭達到國家森林城市的標準。

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Lost in Translation

What do you think??

- “我们坚决“不折腾”“

Translation 1 (翻译 1): “bu zhe teng” (in Chinese press conference)

Translation 2 (翻译 2): “don’t flip flop” (newspaper version)

Translation 2 (翻译 3): “don’t get sidetracked” (media outlet)

Translation 2 (翻译 4): “don’t sway back and forth” (website)

Translation 2 (翻译 5): “no dithering” (website)

Translation 2 (翻译 6): “avoid self-inflicted setbacks” (中国大使任小萍)

Translation 2 (翻译 7): “no trouble making” (国学大师季羡林)

Translation 2 (翻译 8): “do not agitate socially and economically” (wise guy)

Translation 2 (翻译 9): “no social and economical agitation”

Translation 3 (翻译 10): “ ” (what is yours?)

華人環保協會

美國 南加州

Southern California Chinese-American Environmental Protection Association

20 Years
1991-2011

Los Angeles
2011.8.20.