





DE VALÈNCIA Sustainable development of China's construction industry in the 21st century Doctorando: Zhi wu Zhou Directores: Julián Alcalá Víctor Yepes Programa: Doctorado en Infraestructuras de Transporte y Territorio Elemen Methods: Description of the research route and Abstract: The research synthesized data from a model. Research route and relationship comprehensive assessment of the sustainable impact of China's construction industry on the global Scientific algorithm program Build a research model ecological environment in 100 years through Evaluate the theoretical CLCA CSB Statistics and MATLAB: Fitting calculations by interdisciplinary methods. including integration Single span and Interpolation and Analytic hierarchy Wolfram approximation Different process method. Mathemati Advanced Mathematics. Engineering Science. Numerical calculation and drawing Sustainability assessment (SA) regions Computer Science, Environmental Management, and Bridge number:1;2;3;4 --- Analysed Economic Sociology [1-2]. Population Analysed the SA data e regional perio Keywords: GDP quation. Analysed the comprehensive TO=Topology Optimization. Number of bridges egional curve data in the regional Infrastructure investment LCA= Life cycle assessment. Optimize the regional curve equation. Regional data:1;2;3;4 SRSW= Structural Response Sensitivity Weight. Regional curv guation. Country data Optimize the country Interdisciplinary research curve equation legional c quation. National influence data on the world. **Results:** Five indicators are developed as evaluation criteria for regional cases. ,31,200 18.000 5000 8200 11S 2.00 17 23 28 3 13 29 7 5 4 uap deu 15 Jiang Bridge (XHJ1) Unit: 00 3.00 4.00 Displacement (m) Fig.1. Layout drawing. Fig.2. Structural optimization. Fig.3. Finite element analysis. Fig.4. Design of TO. **Research innovation:** 1. The research verified the scientific Ty of China's carbon emission target proposed at the United Nations conference from theoretical data and scientific models. 2. The theoretical innovation model SRSW was established in this research to determine more accurately and intuitively the TO conclusion. 13515 * X, Y, 10643 SSE:7.66e-1 1.5 12 point 11 point 1.0 1.0 0.5 N-1 111925 0.5 o o ő Scope of 0.0 14 point 253213 13 point 0.0 -3 -0.5 -1.0 SSE=0 215150 12 point 11point 14520301.12 $\frac{20}{5}$ $\frac{15}{2}$ $\frac{10}{5}$ $\frac{10}{7}$ $\frac{5}{6}$ $\frac{10}{2}$ $\frac{10}{6}$ $\frac{10}{6}$ 90% VE $\frac{15 \ 10}{d_m} \stackrel{5}{\underline{\times}} \stackrel{0}{\underline{d_g}} 0$ $-2 -1 0 1 2 3 4 5 6 \times d_m - d_q$ $imes 10^5$ -0.01 xdm $-\frac{0}{d_g}$ $\frac{1}{x}d_{m}^{0} - \overline{d_{g}}$ $-\overline{e_g}^{-1}$ Fig.5. Analysis of SRSW(0#). Fig.6. Analysis of SRSW(1#). Fig.7. Analysis of SRSW(2#). Fig.8. Analysis of SRSW(3#). Conclusions: China's LCA will reach a peak of 2.73 GT by 2030, and SIA will reach a peak of 4.26 GT by 2048. LCA and SIA will reach a negative peak of - 1.82 GT and - 0.30 GT by 2060 1.0 $\times 10^{10}$ $\times 10^{1}$ 1.0 Data Untitled fit 0.0 0.8 Microstructure 0.8 -0.5 0.6 0.6 <u>۲</u>0 ĕ-1.0 0.4 -1.5 0.4 Macroeconomic Control -2.0 0.2 0.2 Data **References:** -2.5

-2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 Fig.9. LCC and LCA.

 $\times 10^{6}$

SEE=0,R-square: 1 *Untitled fit

0.0

×10¹¹-2.5 -2.0 -1.5 -1.0 -0.5 LCA 0.0 Fig.10. LCA and SIA. 0.0

SEE=0,R-square: 1

[1] https://doi.org/10.3390/ijerph17165953. [2] https://doi.org/10.1016/j.istruc.2022.05.047.