

# **AI-Powered Chatbots to Optimize the Food Waste Reverse Supply Chain**

**Juan Sebastián Sánchez-Gómez**

Universidad ECCI

Colombia

[jusesago@gmail.com](mailto:jusesago@gmail.com)

## **Abstract**

Is there a technological tool that connects the supply of food suppliers of the Reverse Food Supply Chain in Colombia (CSIAC) and the demand of consumers in extreme poverty, restaurants, or commerce in general? The literature review to date has not found a platform, Chatbot, or technological tool with the characteristics that RECO proposes. What type of architecture and functionalities should this technological tool or platform have to: a) minimize CSIAC waste; b) improve the flow of information and products of the CSIAC and the interaction of its users; c) generate a logistical plan for collection and distribution between suppliers and customers? RECO has the potential to a) level CSIAC's food supply and demand; b) impact food security for vulnerable populations in poverty, rural, or dispersed areas; c) reduce food waste; d) improve donation logistics; e) identify the hidden intangible costs of productive agricultural land. RECO uses OpenAI, Dialogflow, Google Maps, and other underlying tools. RECO demonstrates great potential for AI-driven technology to address agri-food and social challenges. By leveraging AI, geolocation services, and database management, SII creates an efficient platform to connect donors and beneficiaries, ultimately fostering a more sustainable approach to food redistribution. Ethical considerations also play a vital role, particularly regarding privacy and resource allocation. Continuous user feedback and iterative development are essential to refine the chatbot's natural language processing capabilities and ensuring accessibility for diverse user groups.

## **Keywords**

AI-Powered Chatbots , food suppliers , Reverse Food Supply Chain