Forest Land Compensation in Development Project: Experience of Dodhara Chandani ICP/ICD, Nepal

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Abstract

Acquiring land for development purposes in Nepal requires compensation, regardless of whether the land is private or publicly owned. The state receives payment for public lands and forests, whereas landowners receive compensation for private land directly. The dual compensation system substantially raises the overall investment needed for development projects. In addition, the lengthy land acquisition procedure frequently causes project implementation delays, which affects both the efficiency and timeliness of development projects. This paper aims to find out the forest land compensation process, compensation amount, and timeline for land acquisition of the ICP/ICD, an important infrastructure development project in Dodhara-Chandani MP, Kanchanpur, Far West Province, Nepal. It only analyzes the physical compensation, the legal frameworks requisite for forest land acquisition and, the allied procedures involved in with the estimation of compensation costs and pricing for the Dodhara-Chandani ICP/ICD development project. It is based on the document analysis method like laws, policies, official documents, and records. Data was collected through consultations with authorities and interviews with related government officials. Due to the long process and long period, there has been a delay in the implementation of the project. The implementation process has not started yet. Therefore, it can be argued that the state itself has become an obstacle to the development and construction works that the state should do.

Key Words: Forest Land Use, Acquisition process, Land and Tree Compensation, Timing,

Introduction

This case study is based on the development of an Inland Container Depot (ICD) and Integrated Check Post (ICP) at Chandani Dodhara Municipality of Kanchanpur District of Sudurpaschim province of Nepal by of Nepal Intermodal Transport Development Board (NITDB), a semi-government entity, under the Ministry of Industry and Commerce within the upcoming three years (by 2028). The project aims to improve cross-border trade and transportation between Nepal and India. The mandatory documents for the project

development, and the master plan are ready, and the Environmental Impact Assessment (EIA) reports have been approved by the concerned ministry of the government (Ministry of Forests and Environment). The project is envisaged to be completed in two phases, with an estimated budget of NRS. 6.98 billion for the first phase. The project facilities will include customs, warehouses, parking, and others including all the administrative and security protocols for international trade, transport, and travel. Initially, the project was expected to be completed by 2025, with long-term expansion plans for increased capacity. Since the project implementing agency is a government-owned entity, the development will be government-initiative and has a significant step in improving Nepal's infrastructure and of course a milestone for the development of the far western province of the Country. *The Rising Nepal. (2021).* The EIA report, EMP update, and land Accusations process have taken over 4 years, and waiting for the compensation process for site clearance.

The selected project site covers an area of 42.36 hectares of Ward No. 1 of Dodhara-Chandani Municipality, which was a part of Gauri Shankar Community Forest, a community-managed forest in the buffer zone (BZ) of Shuklaphanta National Park (SNP). So, the compensation process for the proposed project must address the damages of their resources i.e. Forest, grazing, firewood, and benefits for affected communities and the process shall be governed by the National Park and Wildlife Conservation Act 2029. A comprehensive and equitable compensation policy for stakeholders.

The ICP/ICD will be a service/facility for the Far West Province for the first time. It would ease congestion at major Indian bordering ports, including the reach of trade to facilities in Mumbai and Gujarat. It will facilitate in easy transportation of goods to and from Nepal via better connectivity to the country's trade networks and India's western states such as Delhi, Rajasthan, Gujarat, Uttarakhand, Punjab, and Haryana. And also, more closely with trade routes leading to western Indian states like Gujarat and Delhi, while fast-tracking economic development in Nepal's most underdeveloped region. It will create a milestone in diplomatic relations, trade relations, and transportation. The project will catalyze trade growth through Indian Ocean ports, thereby enhancing access to international markets for Nepal. *ibid*

ICD/ICP development is one of a major effort put forward by the government to reduce the economic gap between the relatively more developed parts of the country and its underdeveloped regions. It is part of a greater plan for accelerated economic development in this region by introducing better infrastructure and higher trade. The project is identified by

the National Planning Commission as a national priority project, as it can transform the economy of Far Western Province. Proximity to India and being aligned with major trade routes ensures that the project will be pivotal in ensuring increased efficiency, reduced delays, and ultimately enriching regional economic development.

Such large-scale infrastructure construction in Nepal is also extremely burdened with issues of social equity, environmental sustainability, and land acquisition. The very fact that the project itself lies on the land of community forests has raised several questions on the issues of compensation for the land owners and the displacement of local communities. Compensation policies shall ensure that adequate compensation, either in cash or replacement of lands, is accorded to landowners and concerned persons. Additionally, a potential lack of consideration in matters of livelihoods and cultural heritage should be brought into view to minimize the social impact of the project.

Nepal and India have mutually agreed to construct ICP/ICD at Dodhara Chandani. The agreement was signed by the Prime Minister of Nepal at a ceremonial visit to India, with a memorandum exchanged by Nepal's Ministry of Industry, Commerce, and Supplies and India's Ambassador to Nepal, The ICP, funded by Indian investment, is set to be constructed. *Republica (December 28, 2024)*

The Dodhara Chandani ICD/ICP is a transformative infrastructure project for Far West Province, aiming to boost regional and national economic growth by enhancing trade efficiency and connecting Nepal to India. The project highlights the importance of ensuring sustainable development. It emphasizes balancing economic growth with safeguarding infrastructure development.

The total land to be used by the project falls under the category of national forest, (Forest types, Buffer zone community forest, under the management of national park.) Land acquisition for national priority projects**,** the forest land compensation in use in development projects needed to balance with economic and environmental sustainability. Development Project construction required land, in the case of forest land use, has concerns with environmental and biodiversity losses. In the implementation of these impacts, a good compensation framework has emerged, focusing on biodiversity conservation, social equity, and legal compliance. Forest land compensation seeks to restore particular ecosystems and biodiversity. Similarly, forest plantation efforts at ratios of 1:25 to ensure net positive environmental outcomes. Social equity principles ensure compensation for local

communities dependent on forests and forest products, offering alternative land or cash settlements, and development initiatives.

The Legal frameworks, such as Nepal's Forest Act (2019) and Land Acquisition Act (1964), guide the process, mandating environmental impact assessments, stakeholder consultations, and approval protocols. Compensation plans must also align with the financial and technical capacities of project proponents, factoring in the economic value of forest resources and ensuring timely implementation. Moreover, involving local communities through public consultations promotes transparency, trust, and collective responsibility for conservation, enhancing the long-term success of these initiatives. The following research questions have risen for this study.

-What are the forest land acquisition legal frameworks for national infrastructure development projects?

-Why, the land acquisition process for the ICP/ICD development project is different?

-How to determine the forest land compensation cost and price for the project?

Objective of the study

The objective of the study is to describe the forest land acquisition and compensation processes of the Dodhara-Chandani ICP/ICD development project. The specific objectives are as follows:

- To evaluate the legal frameworks related to forest land acquisition for infrastructure development projects.
- To analyze the forest land acquisition processes
- To examine the methods used to determine forest land compensation costs and prices

Methods: Study Area

The project is located at Dodhara Chandani Municipality, Ward No.1, Far Western Province of Nepal. The project site comprises 42.36 Hectares of land in the buffer zone of the of Shuklaphanta National Park, managed under the Gauri Shankar Community Forest User Committee. The project will play an important role as a border trade hub linking the country to considerable western Indian states such as Delhi, Rajasthan, and Gujarat. This strategic juncture near the Nepal-India border shall play a crucial role in ensuring speedy trade routes

toward the Indian Ocean. It is connected with Bhimdatta Municipality through the 6.2 km road all weathered blacktopped road and a bridge over the Mahakali River.

Document analysis method has been applied to obtain the answer to the research question about the forest land acquisition legal frameworks for large-scale infrastructure development projects. In this context, the Land Acquisition Act, 2013, the Land Acquisition Act, 1964, the National Environment Policy, the National Climate Change Policy, the Forest Act, the Land Use Act, etc. have been reviewed. Official project documents, meeting minutes, policy briefs, land acquisition records, compensation documents, and environmental assessments have been analyzed. The concerned authorities like the Ministry of Forest and Environment and, the Ministry of Land Reform have been contacted to collect data about the forest land acquisition process and determination of compensation costs and prices. The consultations and interviews with concerned official persons were conducted.

Legal Aspects

Land acquisition and resettlement issues in Nepal are subject to several different legal regimes at both the national and international levels that attempt to operationalize the Right to Fair Compensation and Transparency in Land Acquisition Act of 2013, and the JICA Environmental and Social Guidelines. The said frameworks allow giving due compensation and follow almost all international standards, even those by the World Bank against social and environmental issues. In the past, compensation given under the Land Acquisition Act 1964 was meager, and land owners had practically nil rights to compensation under the Land Acquisition Act of 1964; however, there were reforms after 1990 where there were constitutional provisions allowing public consultations and paying compensation at economic rates; and this was also backed by the Resettlement Policy Framework (RPF) of 2004. The measures of reducing relocating persons and re-establishing their economic activities after resettlement were also strengthened by RPF. Even then it faces proper problems of transparency, fair compensation, and appropriate resettlement. Improving the legal environment in Nepal and other countries will be expected along with a fair and effective legal process of acquisition and compensation for land, ensuring the development of infrastructure National Policies

National Environment Policy: Necessary arrangements are to be made for keeping the environment clean and healthy. The physical infrastructure will be built with due consideration to environmental concerns.

National Climate Change Policy: The aim here is the development of a healthy environment with minimal detriments to human health hazards for disaster variability related to climate change. National Forest Policy: Preservation, restoration, and sustainable utilization of forests, vegetation, wildlife, and biodiversity. Restoration of the forests which have been damaged in various ways without reducing the current forest area. In cases where the utilization of forest areas cannot be avoided for projects of national priority or pride, the federal government shall plan, to utilize the forest areas provided for by law, policies, and procedures. The federal government utilizes the area in liaison with the provincial and local levels for reforestation to compensate for reduced forest area. Policy on Land Acquisition, Resettlement, and Rehabilitation in Infrastructure Development Projects: Simplify the process of acquisition, compensation, resettlement, rehabilitation, and valuation of land to be simple, transparent, and fair with a view to creating an environment for completing the project within a stipulated time.

Forest Act: Where it is unavoidable to implement nationally prioritized projects, projects approved by the Investment Board, or projects of national pride, using parts of forest areas, and where environmental assessments as required by the prevailing laws demonstrate that such projects will not entail adverse impacts on the environment, a part of national forest areas can be used for such projects as prescribed. When offering the forest areas for the implementation of projects, in case the use of forest areas cannot be avoided, an area near the project area, yet suitable for afforestation shall be offered for planting trees. If land preparation is not possible, then the operating subject of the project shall offer funds to prepare the forestland. The trees on the land for five years need tending and care which need financial remuneration. Deposits received against permission to use land in the forest area will be deposited into the fund. If any part of the forest is put to use under Subsection, the Government of Nepal shall make adequate compensation in case of loss or damage incurred by any person or community.

Land Use Act: It should have provided for the categorization of land-use areas, a limitation on land use change, regulation of fragmentation of the land, and the concerned penalties. The government of Nepal may change the existing land use to establish national pride or priority development projects, industrial zones, special economic zones, and other projects.

Protected Area Physical Infrastructure Construction Procedure, 2080: It describes the regulatory environment, approvals, and financial calculations related to infrastructure construction in protected areas. It states that development projects should be carried out to avoid protected areas as much as possible. If this is not possible, only the minimum necessary area should be used. If land in a protected area is to be used, before conducting a feasibility study and environmental study of such a project, consent should be obtained through the Ministry. If the Government of Nepal decides to use the land for the operation of the project, the Government of Nepal should be provided with land equivalent to the land provided and with similar geographical conditions and ecological systems. It provides the land compensation to ensure environmental sustainability through careful calculations. In protected areas, the compensation charge is determined by the per hectare of land used for infrastructure according to geography (e.g., Terai, Hill, and Mountain regions). Geographically-based land-use fees, afforestation expenses for tree removal, and compensation for biodiversity impacts are all mandated, along with a five-year maintenance period for transplanted trees. Community development and conservation projects must be funded by developers. Feasibility studies are conducted for infrastructure projects that impact important ecosystems, and the mitigation expenses are transferred to government conservation funds. Annual land-use fees vary by region and ecological sensitivity. Financial accountability is incorporated into sustainable infrastructure design through these computational techniques, which guarantee a balance between environmental preservation and development. A systematic compensation process for infrastructure development in protected regions is outlined in the agreement, guaranteeing both financial accountability and environmental rehabilitation. To get permanent land-use rights, developers must pay fees, determined with geographic regions; ranging from NPR 90,00,000 to NPR 1,26,00,000. Annual land-lease fees must also be paid by projects to continue operating in temporary facilities. Any tree removal must include compensatory afforestation at a ratio, along with five years of protection and preservation, to mitigate the environmental damage. Initiatives that impact biodiversity or wildlife habitats must fund mitigation strategies such as conservation initiatives, wildlife corridors, and alternative habitat development. Before project

approvals, all monetary compensation must be settled to the government's conservation fund, and compliance must be strictly monitored. This compensation plan maintains a balance between community well-being, environmental preservation, and infrastructural growth.

Discussion: Loss and Compensation of Forest

The compensation process for forest land begins with identifying the required land for development projects such as roads, hydropower, or conservation areas. An Environmental Impact Assessment (EIA) is conducted to evaluate potential environmental and social impacts and develop mitigation measures. Approval from the Ministry of Forests and Environment (MoFE) or relevant authorities is then obtained. Compensation is determined based on the assessed value of forest resources, including timber and non-timber products, following market rates or government guidelines. Payments are made in cash or kind, ensuring fairness and transparency. Additionally, rehabilitation and resettlement support, including alternative livelihoods, is provided to affected communities. However, challenges such as inadequate compensation often arise, impacting the effectiveness of the process.

Tree and Land Forest Compensations

The total compensation payment of this project is NRS. 14 crore 82 lakhs (NRS. 148.26 million) according to Guidelines for providing land for infrastructure development in protected areas, 2080. Initially, the provision for Land Area for Exchange 42.36 hectares of forest land required similar private land acquisition and transfer in similar geography/location. The amount calculated with valuation of land to monetary payment is due to unavailability of land exchange. The Updated Environmental Management Plan (EMP) estimates, EMP expanses of NRs. 5.10 crore to mitigate project impacts. NRs. 4.44 crore will be paid for the biological environment, i.e. tree plantation including cost of required numbers of forest caretaker, and compensatory land plantations, NRs. 49 lakhs for socio-economic, cultural, Physical, and Chemical environment allocated for health, safety, and disaster management including physical and chemical impact mitigation, including wastewater treatment, solid waste management, traffic signs, alternative energy, etc.

Table 1: Categorical compensated items with an estimation of cost

Category	*Details*	*Estimated Cost (NRs.)*
Biological Environment	*Tree plantation for cutting trees*	*1,48,92,000*
	Forest caretaker	*25,00,000*
	Plantation on compensatory land	*2,37,21,000*
	Additional forest caretaker	*32,00,000*
	Hoarding boards	*1,00,000*
Sub-total (Biological Environment)		*4,44,14,000*
Social, Economic, and Cultural Environment	*Health and safety materials, Disaster management training, and Other social, economic, and cultural costs*	*14,00,000*
Biological Environment (Additional)	*Additional costs*	*12,00,000*
Physical and Chemical Impacts	*Wastewater treatment system waste management, Traffic signs, Alternative energy installation*	*40,00,000*
Total Environmental Management Cost		*5,10,14,000*

Source: Research Survey, 2025

In a development project, there are three kinds of compensations against using forest land: compensation of the cleared forest area, compensatory replanting on that land, and compulsory replantation of plants equaling the ratio of 1:25 to the trees cleared. There is some confusion in tree compensation according to the amount and area of the cleared forest land, maybe by hector as per dowel. Forest Area Destruction: Physically, it would be the destruction of 42.36 hectares of the forest area in the buffer zone of Shuklaphanta National Park where different structures of the dry port will be constructed. Compensation for land equivalent to the damaged forest area is to be provided as per the policy for building and operating physical infrastructure within the protected areas, 2065 corresponds to the year 2008. The compensatory value of land for 42.36 hectares is estimated as NRS. 220,500,000, Damage to Trees and Vegetation: The forest

area comprises about 1702 trees. This has to be compensated by planting 42550 saplings of local species at the ratio of 1:25 in the available space (along the banks of the Mahakali River from Chandani Dodhara Suspension Bridge to the Mahakali River Bridge and the open spaces of the community forests of that area, as suggested by locals) **EIA 2023**. Where enough planting space is not available, additional planting shall be coordinated with Shuklaphanta National Park, Buffer Zone Management Committee, and Municipality, and the saplings shall be protected for at least five years. These plantations will require 42.36 hectares in total, at a rate of 1,600 saplings per hectare. One caretaker will be provided for every 10 hectares, at an annual salary of NRS. 200,000 (Forest Rules 2024). Compensatory plantation for the use of 42.36 hectares of forest land: Plantation is to be done along with a total of 100,800 local species saplings at the rate of 1600 saplings per hectare. Plantation shall be in coordination with Shuklaphanta National Park, Buffer Zone Management Committee, and Municipality. The saplings shall be protected for at least five years with the provision of caretaker, deployed and managed by the implementing agency.

The tree species will be cleared from proposed project area, where different structures of the dry port are to be constructed, Compensation land of the damaged forest area equivalent to the damaged area shall be provided in compliance with the policy for constructing and operating physical infrastructure within protected areas 2065 (2008). Compensatory afforestation of 42550 saplings of local species shall be planted in the available open space or spaces availed by the community forests, BZ user groups, and/or the national park. The local authority and the Department of National Park and Wildlife Conservation (DNPWC) will play a crucial role in all these processes of clearing the vegetation, replantation, and compensation of the loss. The SNP will be the focal institution. The sapling plantation shall be done at the density of 1,600 saplings per hectare on the compensated land, arrangements will be made for a caretaker. The forest land use compensation for 42.36 ha is requires plantation of 67,776 saplings (shall be of local species).

Land Compensations

Social Impact Analysis The ICP/ICD at Dodhara Chadani will have comparatively significant social impacts, especially those related to land acquisition and shifting/displacing the livelihoods of the communities. Acquisition of 42.36 Hectares from Gauri Shankar Community Forest has local relevance to the surroundings; at the same time, it impacts its villagers who garner resources from the forest.

The felling of almost 2,000 trees-replacement planting notwithstanding might disrupt ecological balance and local biodiversity for a while. This would include the project's just compensation to land owners and tenants, as well as all other enterprises disrupted by this venture. The latter is, however, likely to be overcome by the socioeconomic benefit notwithstanding that might be induced by the project in the longer term. Newer avenues of trade, job opportunities, and infrastructure in general would bring about regional growth, especially in a backward region like Far West Province. The project will also offer indirect economic avenues in transport, logistics, and trade. On a larger scale, the assimilation of the project into the regional trade networks is expected to boost the economic well-being of the local communities by increasing access to wider markets both within and outside India. All the same, compensation to the affected communities must be transparent and timely. In addition, alternatives should be provided that would serve to engage the communities in a sustainable manner that would have been displaced, in particular the most vulnerable amongst them, such as women, indigenous peoples, and forest-subsistence dependents. While replanting saplings against deforestation is a great gesture of goodwill, it would take a long way in time to see those new forests survive consistently and flourish with community involvement. It goes without saying that for a sensitive ecological area such as the buffer zone of Shuklaphanta National Park, any biodiversity loss needs to be managed with maximum precaution to reduce the damage to the bare minimum. Policy Implications

The Dodhara-Chandani project has contributed a great deal toward the learning processes relating to how large infrastructure projects should strive for a balance among development and social and environmental considerations. It adheres to several national policies that include the Government of Nepal's Land Acquisition, Resettlement, and Rehabilitation policy, among other legislation concerning forest conservation; however, the scale of this undertaking underlines the need for more refined frameworks that address complex social and environmental impacts. Land Acquisition and Compensation Policies: The policies that are currently in place, such as the Land Acquisition Act, have indeed targeted compensation to land owners and other stakeholders. However, the project definitely underlines the need for smooth processes which ensure timely and adequate compensation, particularly to poor communities. Delays in land acquisition for infrastructure projects increase tensions and further worsen social relations. Hence, transparency in the mechanisms of compensation and better grievance-addressing mechanisms would go a long way in mitigating potential situations of conflict.

Environmental Conservation Policies: With the felling of nearly No's of 1702 trees and replanting saplings in multiple of 25, it's an urgent call to biodiversity conservation. The Nepal Forest Act, which has a provision for compensatory replantation, is welcomed; still, it shows the problems of long-term feasibility. The future activities should not be related to replanting only but also come up with mechanisms of continuous monitoring of reforested areas, with the involvement of the local communities for the same, in conservation. This would go in tune with Nepal's National Forest Policy on sustainable forest management. Cross-Border Trade and Infrastructure Development: The project is in tune with Nepal's bigger trade and infrastructure development plans, especially its engagement in promoting trade connectivity with India. Policies promoting cross-border trade infrastructure, like the dry port, will spur growth in backward regions. This project was cleared by the National Planning Commission as a national priority, which underlines the strategic importance of this project. What is needed next is an integrated policy framework that can ensure not just economic viability but also social inclusiveness and environmental sustainability of such projects. Involvement of the Local Communities: The case further holds policy relevance in terms of community engagement and involvement. There should be transparency in stakeholder consultation and adequate consultation with local communities about land compensation and environmental management. Policies that would involve the local populace in decision-making processes and grant the local people a proper share of the long-term benefit accruable from such projects would make a much more valuable contribution toward more sustainable development results.

The construction of Dodhara-Chandani ICP/ICD at Dodhara Chadani would provide infrastructural work that would ensure quantum jumps in trade and transportation between Nepal and India, especially aiding the Far West Province. This would be the first such development of its kind in this region. Thus, it would have considerable prospects for accelerating economic growth and creating jobs, putting this traditionally deprived area with a large national and international trade network. While the financial returns are inviting, the project also embodies several challenges. The fact that 42.36 Hectares of forest land will be acquired and almost 1700 trees cut down reflects the cost to the environment by infrastructure development. However, compensatory reforestation and adherence to Nepal's Environment and Forest Conservation Policies do reflect mitigations for those impacts. Socially, the success of the project is pegged on landowners and communities being compensated fairly and transparently. Sufficiency in livelihood restoration and stakeholder engagement is very vital to

ensure that the populations to be displaced-most especially those from vulnerable groups- do not lag in development. The fact that the project was integrated into the national policy framework in Nepal, coupled with adherence to international standards, provides a base upon which such goals can be achieved. Finally, the Dodhara-Chandani project has played an important role in showing the place that infrastructure development occupies alongside social and environmental concerns. It has shown that policy frameworks will be required to ensure sustainability and equity in benefit-sharing. This project can be a role model for infrastructural development projects in Nepal in times to come by being inclusive in growth while preserving nature and social resources.

Conclusions

Land acquisition for development projects in Nepal is compensated for/ by the state for both public and private lands. The proposed ICD/ICP, therefore, represents a very critical infrastructural development strategy in efforts to increase trade and transportation between Nepal and India, especially the Far West Province. With strategic positioning of the dry port, the project could be granted access to opening new trade routes, stimulation of economic growth, and employment potentiality. Its integration into the national trade framework of Nepal underlines the project's importance as a national priority. The five-year process of land acquisition and the complicated procedures for compensation call for action for better mechanisms.

The different experiences of development emphasize the need for clarity, efficiency, flexible of policies, laws, rules, and procedures in acquiring the required land for any infrastructure development projects. Land acquisition in the areas that are conservation areas and protected areas are the legal and procedural complications. The challenges require immediate changes in policy and laws to break down the obstacles arising thereof and hence smoothen the development initiatives.

Compensation mechanisms, under land acquisition in forest areas, are not simple but could be very entailing, comprising several financial burdens. For instance, land may be compensated by giving the exact size of the land or payment of money to replace land as compensation when lands are not readily available. Then, tree compensations involve replacing trees either in monetary value after which planting may be made in the compensated location. Besides, the project proponents have to bear the cost of caring for these plants for

five years and the costs related to felling and removal of the trees. The revenue that comes from the sale of the felled trees is retained by the government. All these cumulative financial burdens increase the overall cost of the projects and make them economically unviable in many cases. Thus, many projects either get abandoned mid-way or see significant delays that make them extremely costly.

Ironically, the Government of Nepal has become an obstacle to the timely and economically viable implementation of vital projects, including those of binational significance, although it should act as a facilitator of development. The complex and time-consuming processes of compensation for land and permissions result in delays and increased project costs. This inefficiency not only makes the projects economically non-viable but also diminishes their potential long-term deliverables to the region.

The existing land acquisition legal regime in the PAs is an immediate call to reform due to the various acts that cause roadblocks in project implementation. To be more precise, the essentials of infrastructure include efficiency in compensatory mechanisms and reduction of delays due to bureaucracy, apart from transparency in the decision-making mechanism.

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