Assessing the Socio-Economic Cost incurred by Land Losers due to Land Conversion from Rural to Urban: A Case Study of New Town Kolkata, West Bengal, India

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Abstract

India has been a rapidly urbanizing country despite being known as a country of villages for centuries. Since Independence, India has witnessed the emergence of more than 2500 New Towns across the country, mostly developed through conversion of rural lands. New Town Kolkata in West Bengal being no exception, involved acquisition and conversion of 3075 hectare of rural land of which 68.36% was agricultural land. While such land acquisition led to economic displacement of the local people, it also led to a huge amount of investment in the form of project costs (INR 203,17,19,887 in 2014-2015) for the development of New Town. This paper aims to determine the direct benefit accrued to the state from the said investment which is achieved in cost of displacement and livelihood changes of local people. For this purpose, the past (before land acquisition) and present economic conditions of these people have been compared. Taking into consideration of almost all sources of income of past as well as present, a cost benefit analysis in present value terms has been done for the period of 1999 (beginning year of land acquisition) to 2014. A quantitative evaluation of cost incurred by the land losers and a comparison with the compensation paid has been made. Also, a qualitative assessment of uncompensated intangible costs incurred by the land losers have been presented. Hence the ethics of the new town planning as practiced in our country is questioned.

Keywords : Land Conversion, New Town, Opportunity Cost, Cost Benefit Analysis, Gross Profit Ratio

I. Introduction

A large scale of rural land conversion (3075 hectare) was taking place for the development of New Town Kolkata, out of which 68.36% was agricultural land. This had resulted in the loss of livelihood for 1.6 lakh families. The acquisition started in the year of 1999. A large scale investment was done as project cost, hence the analysis of the socio economic cost of the land losers is pertinent for the assessment of the project. Compensation had been provided to the land losers as they had lost their livelihood. But there were many non-quantitative costs which were not considered while fixing the rate of compensations such as loss of social identity,
satisfaction level of the land losers, loss of jobs with specialized skills etc. Economic cost means operational and maintenance cost for running a project with a motive to attain higher marginal return on investment, on the other hand social cost comprises of the cost that is borne by society like cost of social and environmental health, cost of cultural heritages, people’s satisfaction etc. Thus, social cost may be tangible as well as intangible; quantifiable as well as unquantifiable.

**Methodology**

The opportunity cost for the land losers i.e. the discounted present value of the perpetual stream of agricultural cash flow into the future that they are giving up as well as the agricultural assets not in use anymore, both living (cattle) and non-living (machineries), have been calculated against the benefit they received in terms of the compensation and an overall societal cost-benefit analysis has been presented. First the forward looking estimates of Interest Rate (r) and Inflation Rate (g) is calculated. Then inflation Rate (g) is used as proxy for perpetual growth rate in Net Income going forward. Value of the Agricultural land is calculated based on discounting the infinite stream of cash flows going into the future using the formulae

\[ V_{2000} = \frac{NI_{2000} \times (1+g)}{(r-g)} \]

Net Income has been assumed as a proxy for Cash Flows. Such Value is divided by individual land holdings to attain at Value of unit land for individuals. Hence, Gain/Loss is calculated as (Compensation – Value) per unit land. The above calculations are done for 1000 people in the data sample. Percentage number of people incurring loss is calculated. Besides this, qualitative aspects related to people’s satisfaction with this project and other intangible costs have been calculated as such cannot be factored in within the quantitative assessment methodology.

**II. Quantitative Evaluation of Cost incurred by the Land Losers**

The cost borne by the land losers whose land was acquired by the authority for the development of New Town Kolkata, is actually the opportunity cost i.e. the discounted present value of the infinite stream of future agricultural cash flows. Net Income is considered as a proxy for Cash Flows. A cost-benefit analysis has been done at the individual as well as the societal level as per estimates and scenarios standing in the year 2000. In this year land acquisition was started. The erstwhile value of land in use has been compared with the actual compensation provided at that time.

To calculate the value in use of the land of individual land losers, the Net Income in the Base year (2000) has been assumed to grow at a constant rate ‘g’ perpetually into the future and a discount rate ‘r’ to discount all the future cash flows to arrive at the present value of the land. Per Bigha Gain/Loss has been calculated by subtracting Per Bigha Compensation from Per Bigha Value of Land in Use. An aggregate Societal Benefit metric has been arrived at by summing the Per Bigha Gain/Loss number across all individual holdings.

The decade of the 90s witnessed steadily declining interest rates as a result of policies that opened the economy in the international market. Towards the late 90s interest rates showed signs of stabilization at around the 10% levels. For this analysis, 10% discount on erstwhile interest rates for the forward estimate of long term interest rates
is assumed. Also, a growth rate of income (assuming same levels of productivity) at 4.5%, closely with expected inflation rate.

Assumption 1: \( r = 9\% \)

Assumption 2: \( g = 4.5\% \)

Values of individual holdings have been calculated using the formula for Present Value (\( V \)) from discounted future perpetual stream of cash flows from 2001:

\[
V = \frac{NI_{2000} \times (1 + g)}{(r - g)}
\]

Assumption 1: Productivity levels of individual holdings remain constant.

Per Bigha Gain/Loss for individual farmers are calculated as:

\[
\text{Gain/Loss (Per Bigha)} = \text{Compensation (Per Bigha)} - \text{Value (Per Bigha)}
\]

A plot of the Gain/Loss at Compensation Level of INR 1, 60,000 per Bigha has been shown in Fig No 1.

**Fig No 1 Gain/Loss per Bigha at Compensation Level of INR 1, 60,000**

Source: Primary Survey 2014-2015

The distribution parameters are shown in the Table No 1 below:

<table>
<thead>
<tr>
<th>Compensation</th>
<th>1,40,000</th>
<th>1,60,000</th>
<th>1,80,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>-16,437</td>
<td>3,563</td>
<td>23,563</td>
</tr>
<tr>
<td>Standard Deviation (S.D.)</td>
<td>63161.5744</td>
<td>63161.5744</td>
<td>63161.5744</td>
</tr>
<tr>
<td>( n ) (Mean/S.D.)</td>
<td>-0.26022986</td>
<td>0.05641836</td>
<td>0.37306658</td>
</tr>
<tr>
<td>( n ) (95% C.I.)</td>
<td>-1.96 to +1.96</td>
<td>-1.96 to +1.96</td>
<td>-1.96 to +1.96</td>
</tr>
<tr>
<td>No. of farmers at loss</td>
<td>497</td>
<td>383</td>
<td>287</td>
</tr>
</tbody>
</table>

Source: Primary Survey 2014-2015

Assuming Normal Distribution for Gain/Loss it is stated that the Hypothesis that Gain/Loss is statistically zero cannot be rejected if ‘n’ lies within the 95% Confidence
Interval (C.I.) critical values i.e. $n \pm 1.96$. Since $n = 0.0564$ i.e. within the C.I. i.e. within -1.96 and +1.96, we cannot reject the Hypothesis that Gain/Loss is 0 (zero). Hence it is concluded that overall Societal Gain/Loss as estimated from this sample is equal to 0 (zero).

No. of land losers incurring loss = 383.

A sensitivity analysis table is shown below in Table No 2:

<table>
<thead>
<tr>
<th>Compensation</th>
<th>1,40,000</th>
<th>1,60,000</th>
<th>1,80,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>r-g</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.50%</td>
<td>-25,127</td>
<td>-5,127</td>
<td>14,873</td>
</tr>
<tr>
<td>4.75%</td>
<td>-16,437</td>
<td>3,563</td>
<td>23,563</td>
</tr>
<tr>
<td>5.00%</td>
<td>-8,615</td>
<td>11,385</td>
<td>31,385</td>
</tr>
</tbody>
</table>

Source: Primary Survey 2014-2015

At the estimated level of ‘r-g’ and Compensation, the aggregate Societal Benefit is shown in the highlighted number. The Benefit would increase with the increase in either Compensation or ‘r-g’.

This reflects:

i) The Aggregate societal benefit metric from our sample set is statistically insignificant at a Level of Significance of 5%; $p > 0.05$, hence the claim that the overall benefit to society remains at zero cannot be rejected. Here we have assumed critical values for a Normal Distribution.

ii) It is observed that the Compensation has been set just around the cross-over figure where the Aggregate Societal Benefit turns positive. Hence, it can be said that such compensation has been determined based on average levels of value in use of land of individual farmers.

iii) As per the law of averages, the high-income land losers are incurring losses and low-income land losers are making profits at such levels of compensation. Therefore, despite the fact that the method of compensation can be stated to be cost-benefit neutral at an aggregate level, at an individual level, better performance has been penalized.

iv) Since no compensation was provided by the authorities for other movable assets and cattle, the farmers were forced to sell all these assets in the market around the same time. Increased supply had depressed the prices of these assets and true value was not realized leading to severe losses for the farmers.

v) Considering the limitations of a quantitative model it can be stated that the qualitative cost factors were not considered while determining compensations levels for the land. Such factors have been briefly discussed subsequently.

The following observation is derived:

i) A very critical idea that needs to be understood is that the intrinsic value of land should have been considered while determining compensation levels and not the average of value in use of land for individual land losers, that too based on present income levels.

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Based on the regression analysis of value of individual holdings against unit of land (Bigha), it is observed that the appropriate average per unit value of holdings should be 1,66,028 INR (slope of the Regression Line) which is marginally higher than the actual compensation of 1,60,000 INR by a 3.8%. However, as evident from the chart, the values in use of the land for many farmers lie above the line, i.e. higher than the average compensation itself.

**Fig No:2 Value for Individual Holdings against units of Land**

![Graph showing regression analysis](image)

**Source:** Primary Survey 2014-2015

ii) One of the primary intangible or unquantifiable cost factors that have not been considered is the large-scale loss of job. This segment of population having specialised skills in agriculture were deprived of their land and livelihood but no effort was made towards any new skill development for them so as to enable them to get jobs in other sectors.

### III. Qualitative Evaluation of Cost Factors for the Land Losers

The working population of the acquired villages was predominantly engaged in agricultural activities. After acquisition, cultivation was stopped and urban development took place. It was reflected in the occupational changes in the working population of the sample studied.

The marginal workers of all of the acquired mouzas (revenue units) have increased during the period of 1991-2001. Percentages of main workers decreased from 95.5% in 1991 to 87.8% in 2001. Also, the marginal workers increased from 3.5% in 1991 to 11.7% in 2001 (Table No 3). During this period, the new town project came into shape. Moreover, the weakening of the agricultural activities might have compelled them to become marginal workers. As per census data of 2011, situation has changed with a slight rise in main workers. This may be due to the fact that new set of residents are now occupying the area.


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Table No 3 Distribution of Workers, Rajarhat

<table>
<thead>
<tr>
<th>Year</th>
<th>Main Worker</th>
<th>Marginal Worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>96.50</td>
<td>3.50</td>
</tr>
<tr>
<td>2001</td>
<td>87.84</td>
<td>11.68</td>
</tr>
<tr>
<td>2011</td>
<td>92.72</td>
<td>7.28</td>
</tr>
</tbody>
</table>


The internal composition of main workers (Table No 4) shows that the percentages of cultivators and agricultural workers have decreased by a very negligible amount during the period between 1991 to 2001. The number of cultivators decreased from 10.38% in 1991 to 10.14% in 2001 and the number of agricultural workers decreased from 16.96% in 1991 to 14.66% in 2001. However, the workers engaged in both these sectors decreased drastically from 2001 to 2011. This was due to acquisition of the agricultural land for development of the New Town Kolkata.

Table No 4 Decadal Changes of Main Workers, Rajarhat

<table>
<thead>
<tr>
<th>Type of Main Workers</th>
<th>Percentage of Workers (1991)</th>
<th>Percentage of Workers (2001)</th>
<th>Percentage of Workers (2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivators</td>
<td>10.38</td>
<td>10.14</td>
<td>4.84</td>
</tr>
<tr>
<td>Agricultural Workers</td>
<td>16.96</td>
<td>14.66</td>
<td>4.28</td>
</tr>
<tr>
<td>Household industry</td>
<td>1.91</td>
<td>5.22</td>
<td>2.86</td>
</tr>
<tr>
<td>Others</td>
<td>14.41</td>
<td>69.27</td>
<td>88.03</td>
</tr>
</tbody>
</table>


WBHIDCO in its master plan for New Town Kolkata proposed to integrate the surrounding residential areas as “service villages”. Villages would provide cheap accommodations for the service class that would be required by those living in the gated complexes. Planners assumed that villagers would turn into workers engaged in informal service sector as new developments would lead to an enormous demand for servants, housekeepers, drivers, cleaners, cooks, security guard, construction labor etc. Apartment dwellers might be dependent on the villagers for a number of their daily requirements.

The sample survey shows (Fig No 3) that the land losers are engaged in the following occupation likemaid servants (25.8%), carpenters, painters and masons (12%), drivers (7.5%), security guards (2.4%) and electrician (2%). However, the land losers agree
that the above-mentioned job opportunities have opened up though these are not dignified ones. Moreover, these people have to cope with the uncertain income based on availability of job opportunities unlike the comparatively stable income they received from agriculture.

**Fig No 3 Occupational Changes of the Land Losers**

Fast development of New Town Kolkata has created a new and distinctive source of employment. Only 0.7% of the sample population of the land losers becomes real estate brokers who earn a fixed rate of commission on sales agreements from both the sellers and the buyers. Moreover, due to huge constructional work for buildings and infrastructure development, there is an enormous demand of raw materials like sand, bricks, iron rods, cement and other necessary materials. To provide these materials a number of cooperatives with 10 to 20 members or more from the community of land losers have been formed. These cooperatives are locally known as ‘syndicate’. 6.6% of land losers from the sample are engaged in this type of business. The profit earned by a syndicate is distributed among the members on the basis of their share in the total. The syndicates which are temporary in nature have emerged as important sources of income for the land losers’ family in post-acquisition stage. Considerable proportions (15.5%) of land losers are jobless as they may not be able to cope with other non-agricultural livelihood activities in the rapidly changing economic environment in post-acquisition stage.

Still at the time of the primary survey, 0.6% and 2.3% land losers continue to practice agricultural activities and fishing respectively in the surrounding areas. Both the activities are generally done on the acquired land where developmental activities have not yet started.

**IV. Conclusion**

Acquisition of agricultural land and its conversion for non-agricultural purposes has changed the pattern of occupation and income of the land losers. It has caused downward changes of the agrarian status of the land owners. Their economic strength has been weakened. With the intrusion of urban class, social environment is gradually changing. Social cohesion and the identity of agrarian societies have been shattered.


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V. Acknowledgement

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Reference


