FACTORS AFFECTING COMMUNITY SATISFACTION FROM DEVELOPMENT OF INDUSTRIAL PARKS: A CASE STUDY OF BẾN TRE PROVINCE

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In the past two decades, establishment and development of industrial parks, originating from the economic reform, has helped form a modern infrastructure, expand sources of finance and affect favorably the economic growth and changes in the structure of industry, and create new jobs in Vietnam. There have been numerous studies of economic efficiency of industrial parks, but their effects on quality of life of local communities have not been fully examined, especially in quantitative aspect. This problem has become a challenge to researchers and policy makers in Vietnam. To help solve it, authors have conducted a case study in Bến Tre with a view to collecting data and evidence from reality and this article tries to present (1) a quantitative model of factors affecting the community satisfaction and some policy suggestions for local authorities.

1. Theoretical basis and research model

Mentioning the concept of community satisfaction, Knop and Stewart (1973) [1] said that there were two problems relating to the community satisfaction. The first one is the concept itself. The community could be defined as (1) a social form in a specific locality; and (2) an entity comprising a wide range of activities and specific features typical of its daily life but not necessarily common among communities in any aspects. The second problem is the meaning of the satisfaction. It could be conceptualized as ideas or judgments by individuals of their experiences when observing and thinking of their communities. Effects on the community satisfaction from various aspects have been the subject of a significant body of research
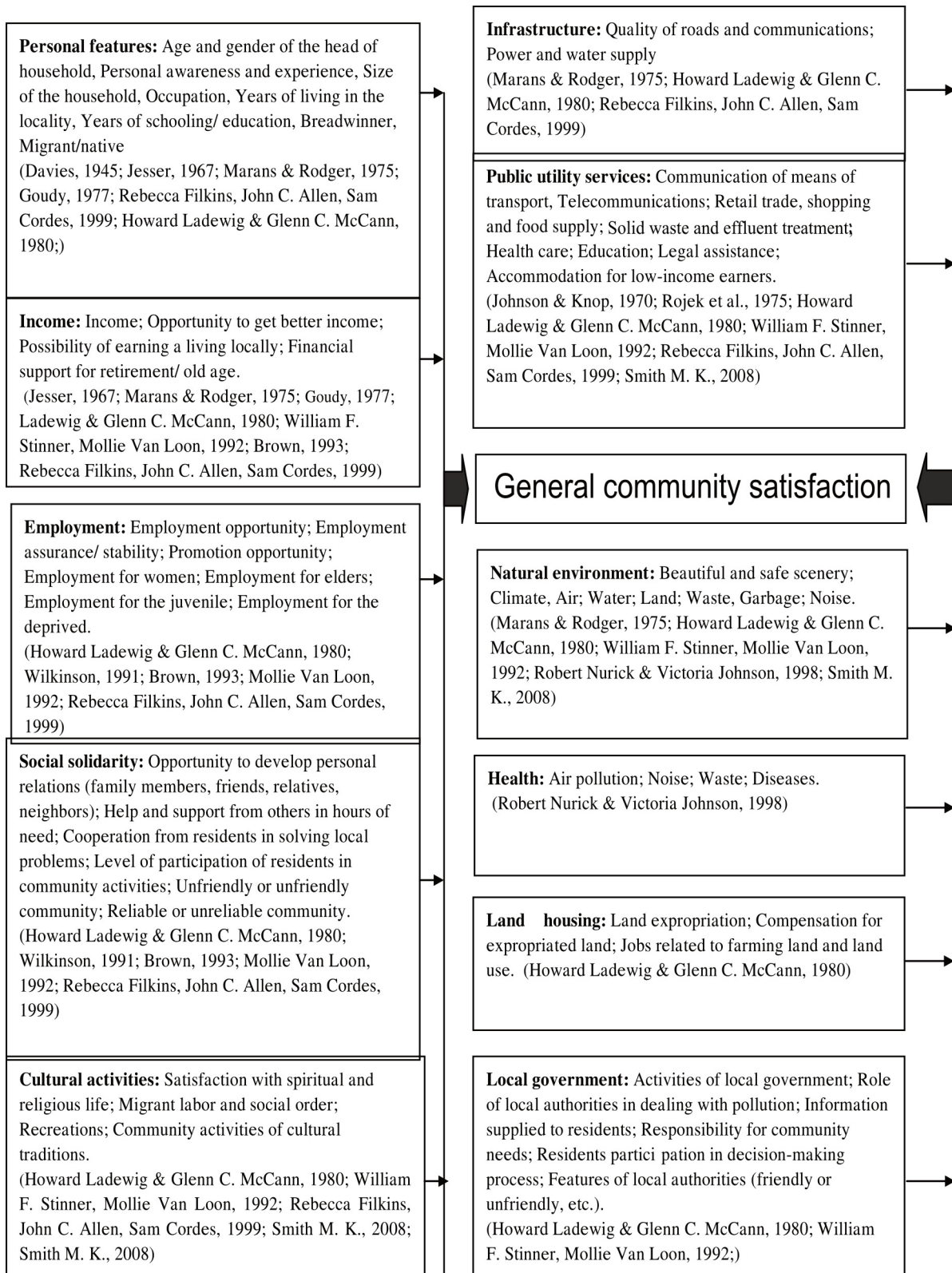
since the 1940s. Generally, factors affecting the quality of life of community could be described in Figure 1.

a. Scales and observed variables:

After discussions with experts (especially those working in Bến Tre), five-point Likert scales for measuring observed variables are worked out to conduct EFA. There are 10 factors and 53 observed variables: (1) Income (changing or stable, and chances to get the income); (2) Employment (employment opportunity, stable and unstable jobs, employment and employment opportunities for women); (3) Social solidarity (relations with relatives and neighbors, mutual support and cooperation, participation in social activities, friendly and reliable relations); (4) Infrastructure (changes in quality of roads and communications, access to and use of power and water supply, quality and prices of power and water supplied); (5) Public utility services (changes in transport, communications, trading service, environmental health, public health, health care, facilities for education, vocational training and guidance, legal advice and assistance); (6) Cultural activities (changes in spiritual life, recreations, community activities, social order); (7) Natural environment (changes in the scenery, living condition, air and water pollution, noise, solid waste and effluent treatment); (8) Health (effects of pollutants, such as smoke, effluent, noise, and waste, on public health); (9) Land-housing (changes in housing condition caused by plans to build industrial parks); (10) Local government (Managerial competence, attitude, dissemination of information, attention to needs of community, vocational training for laborers).

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Figure 1: Model of factors affecting the community satisfaction

Personal features: Age and gender of the head of household, Personal awareness and experience, Size of the household, Occupation, Years of living in the locality, Years of schooling/ education, Breadwinner, Migrant/native
(Davies, 1945; Jesser, 1967; Marans & Rodger, 1975; Goudy, 1977; Rebecca Filkins, John C. Allen, Sam Cordes, 1999; Howard Ladewig & Glenn C. McCann, 1980;)

Income: Income; Opportunity to get better income; Possibility of earning a living locally; Financial support for retirement/ old age.
(Jesser, 1967; Marans & Rodger, 1975; Goudy, 1977; Ladewig & Glenn C. McCann, 1980; William F. Stinner, Mollie Van Loon, 1992; Brown, 1993; Rebecca Filkins, John C. Allen, Sam Cordes, 1999)

Employment: Employment opportunity; Employment assurance/ stability; Promotion opportunity; Employment for women; Employment for elders; Employment for the juvenile; Employment for the deprived.
(Howard Ladewig & Glenn C. McCann, 1980; Wilkinson, 1991; Brown, 1993; Mollie Van Loon, 1992; Rebecca Filkins, John C. Allen, Sam Cordes, 1999)

Social solidarity: Opportunity to develop personal relations (family members, friends, relatives, neighbors); Help and support from others in hours of need; Cooperation from residents in solving local problems; Level of participation of residents in community activities; Unfriendly or unfriendly community; Reliable or unreliable community.
(Howard Ladewig & Glenn C. McCann, 1980; Wilkinson, 1991; Brown, 1993; Mollie Van Loon, 1992; Rebecca Filkins, John C. Allen, Sam Cordes, 1999)

Cultural activities: Satisfaction with spiritual and religious life; Migrant labor and social order; Recreations; Community activities of cultural traditions.
(Howard Ladewig & Glenn C. McCann, 1980; William F. Stinner, Mollie Van Loon, 1992; Rebecca Filkins, John C. Allen, Sam Cordes, 1999; Smith M. K., 2008; Smith M. K., 2008)

Infrastructure: Quality of roads and communications; Power and water supply
(Marans & Rodger, 1975; Howard Ladewig & Glenn C. McCann, 1980; Rebecca Filkins, John C. Allen, Sam Cordes, 1999)

Public utility services: Communication of means of transport, Telecommunications; Retail trade, shopping and food supply; Solid waste and effluent treatment; Health care; Education; Legal assistance; Accommodation for low-income earners.
(Johnson & Knop, 1970; Rojek et al., 1975; Howard Ladewig & Glenn C. McCann, 1980; William F. Stinner, Mollie Van Loon, 1992; Rebecca Filkins, John C. Allen, Sam Cordes, 1999; Smith M. K., 2008)

General community satisfaction

Natural environment: Beautiful and safe scenery; Climate, Air; Water; Land; Waste, Garbage; Noise.
(Marans & Rodger, 1975; Howard Ladewig & Glenn C. McCann, 1980; William F. Stinner, Mollie Van Loon, 1992; Robert Nurick & Victoria Johnson, 1998; Smith M. K., 2008)

Health: Air pollution; Noise; Waste; Diseases.
(Robert Nurick & Victoria Johnson, 1998)

Land housing: Land expropriation; Compensation for expropriated land; Jobs related to farming land and land use. (Howard Ladewig & Glenn C. McCann, 1980)

Local government: Activities of local government; Role of local authorities in dealing with pollution; Information supplied to residents; Responsibility for community needs; Residents partici pation in decision-making process; Features of local authorities (friendly or unfriendly, etc.).
(Howard Ladewig & Glenn C. McCann, 1980; William F. Stinner, Mollie Van Loon, 1992;)

b. Method and data analysis:

The research comprises two phases:

Phase 1: Qualitative research is conducted to build and develop a system of concept/ scale and variables needed for formation of a questionnaire.

Phase 2: SPSS for Window 16.0 is used in the 2-step quantitative research:

- EFA: Checking the factors and identifying the ones considered as appropriate by local residents.

- Regression analysis: Identifying the factors affecting the satisfaction with some statistical significance, and estimating how much the factors affect the community satisfaction.

c. Size of the research and method of collecting the data

To apply the model to reality, the authors investigated households in the following localities: Giao Long IP with three adjacent communes: An Phước (with four hamlets 1, 2, 3, and 4); Quới Sơn (four hamlets 4, 7, 8, and 9); Giao Long (hamlet 6) and An Hiệp IP in An Hiệp Commune (comprising two hamlets: An Hòa and Thuận Điền), of Châu Thành District of Bến Tre Province. The investigation and data collection were conducted from October to November 2009 [2].

The representative sample comprises conveniently selected 403 households with full attention paid to sociological investigation method. The survey includes direct interviews with heads of the households based on questionnaires that comprises 53 variables estimated with a 5-point Likert scale. The authors carried out a pilot survey with 20 households of the group of interest, thereby modifying the observed variables and making the questionnaire more appropriate to local conditions before conducting the full-scale investigation.

2. Results of application

a. EFA: Ten factors and 53 variables used for the EFA are identified. The EFA is carried out to ensure:

(1) Reliability of observed variables (Factor loading > 0.5)

(2) Fit of the model (0.5 < KMO = 0.801 < 1)

(3) Bartlett's test for correlation between observed variables (Sig. = 0.000 < 0.05)

(4) Test for cumulative variance (cumulative variance = 64.735% > 50%)

After three EFA sessions based on four mentioned and satisfied criteria, the Table 1 shows that nine observed variables were eliminated and the 44 remaining ones are divided into 12 factors.

(1) Factor 1 (F1) comprises eight observed variables (HEA2, HEA4, ENV3, ENV5, ENV6, INF4, INF5 and PUS4). They belong to Natural Environment Scale, Health Scale, Infrastructure Scale and Public Utility Services Scale, where stress is put on two issues – water and waste. Thus we can call F1 "Quality of water supplied and environmental hygiene services."

(2) Factor 2 (F2) comprises seven observed variables (GOV1, GOV2, GOV3, GOV4, GOV5, GOV6 and GOV7) that belong to the Local Government Scale and therefore can be named collectively as "Local government".

(3) Factor 3 (F3) consists of four observed variables (ENV2, ENV3, HEA1 and HEA3) that are included in the Natural Environment Scale and Health Scale related to effects of smoke and noise on the public health, therefore the F3 can be named as "Environment – Health".

(4) Factor 4 (F4) comprises four observed variables (INC1, INC3, EMP1 and EMP4). These variables belong to the Income Scale and Employment Scale related to opportunity to get income and employment for local residents, therefore the F2 is named as "Opportunity to get employment and income".

(5) Factor 5 (F5) comprises four observed variables (SOL1, SOL3, SOL5 and SOL6) belonging to the Social Solidarity Scale that reflects relations with friends, relatives and other residents. Thus, the F5 is called "Social Solidarity".

(6) Factor 6 (F6) consists of three observed variables (CUL4, CUL5 and CUL6). They belong to the Culture – Society Scale concerning social order and activities in the community. And therefore the F6 can be named as "Cultural life and social order".

(7) Factor 7 (F7) called "Stability of employment and income" comprises two observed variables (INC2 and EMP2).

(8) Factor 8 (F8) comprises three observed variables (PUS7, PUS8, and GOV8). They belong to the Public Utility Services Scale and Local Government Scale concerning education and vocational training in the locale, therefore the F8 is

Table 1: Factor loadings in the rotated component matrix 3

	Rotated component matrix											
	Factor											
	1	2	3	4	5	6	7	8	9	10	11	12
HEA2	0.80											
HEA4	0.79											
ENV3	0.75											
ENV6	0.66											
INF5	-0.61											
PUS4	-0.59											
ENV5	0.55											
INF4	-0.53											
GOV1		0.72										
GOV2		0.72										
GOV6		0.69										
GOV3		0.66										
GOV7		0.66										
GOV5		0.55										
GOV4		0.51										
HEA3			0.84									
ENV4			0.83									
ENV2			0.82									
HEA1			0.80									
EMP1				0.83								
INC1				0.78								
EMP4				0.77								
INC3				0.59								
SOL5					0.78							
SOL6					0.76							
SOL1					0.76							
SOL3					0.53							
CUL5						0.81						
CUL4						0.79						
CUL6						0.70						
INC2							0.87					
EMP2							0.85					
PUS7								0.80				
GOV8								0.68				
PUS8								0.66				
PUS1									0.72			
INF1									0.64			
HOU2									0.54			
PUS6										0.76		
PUS3										0.58		
PUS5										0.57		
CUL3											0.71	
CUL2											0.63	
INF3												0.66

called "Development of education and vocational training".

(9) Factor 9 (F9) is named as "Quality of communications" and consists of three observed variables (PUS1, INF1 and HOU2).

(10) Factor 10 (F10) is called "Public utility service" and comprises three observed variables (PUS3, PUS5 and PUS6).

(11) Factor 11 (F11) is named as "Cultural activity and recreations" and comprises two observed variables (CUL2 and CUL3).

(12) Factor 12 (F12) has only one observed variable (INF3) and is called "Reasonable price of electricity".

(13) As for the Overall Community Satisfaction as a factor, the same EFA is run for the Overall Community Satisfaction Scale that comprises three observed variables (SAT1, SAT2, and SAT3).

SAT1	Generally, are you satisfied with your life here with changes after the industrial park was built?
SAT2	Does the industrial park produce positive effects on the life or income of your family?
SAT3	At present, do you think your community is an ideal place to live?

b. Quantitative model:

- Regression model: The modified regression model after the EFA is as follows:

SAT = f (F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12)

Considering factors from E1 to F12 and determining which ones affect directly the overall satisfaction is realized using the multiple linear regression equation:

$SAT = 0 + 1F1 + 2F2 + 3F3 + 4F4 + 5F5 + 6F6 + 7F7 + 8F8 + 9F9 + 10F10 + 11F11 + 12F12 + ei$

In which, factorial scores of variables included in the regression analysis can be worked out by calculating the arithmetic mean of observed variables belonging to the corresponding factor. Variables in the multiple linear regression model are explained in the Table 2.

- Regression analysis:

The Table 3 shows that five variables have a 95% confidence interval (Significance < 0.05). The adjusted R^2 in the model equals 0.341, which means that 34.1% of the community satisfaction

Table 2: Interpretation of variables in the multiple linear regression model

Factor		Observed variable	Kind of scale	Expectation sign
Name of factor	**Sign**			
Overall community satisfaction.	SAT	SAT1, SAT2, SAT3	Interval	
1. Quality of water supplied and environmental hygiene services	F1	HEA2, HEA4, ENV3, ENV5, ENV6, INF4, INF5, PUS4	Interval	+
2. Local government	F2	GOV1, GOV2, GOV3, GOV4, GOV5, GOV6, GOV7	Interval	+
3. Environment - Health	F3	ENV2, ENV4, HEA1, HEA3	Interval	-
4. Opportunity to get employment and income	F4	INC1, INC3, EMP1, EMP4	Interval	+
5. Social solidarity.	F5	SOL1, SOL3, SOL5, SOL6	Interval	+
6. Cultural life and social order	F6	CUL4, CUL5, CUL6	Interval	+
7. Stability of employment and income	F7	INC2, EMP2	Interval	+
8. Development of education and vocational training	F8	PUS7, PUS8, GOV8	Interval	+
9. Quality of communications	F9	PUS1, INF1, HOU2	Interval	+
10. Public utility service	F10	PUS3, PUS5, PUS6	Interval	+
11. Cultural activity and recreations	F11	CUL2, CUL3	Interval	+
12. Reasonable price of electricity	F12	INF3	Interval	+

can be explained by variables in the regression model. Tests for the fit of the model, multi-collinearity and variance stability of error show no violation. The regression equation anticipating effects of factors on the overall community satisfaction is as follows:

SAT = 0.734 + 0.298*F2 + 0.252*F4 + 0.190*F7 + 0.101 *F9 − 0.068*F3

factors actually affect the community satisfaction and they are as follows in order of importance:

- Opportunity to get employment and income: More opportunities make their appearance.

- Local government: It offers effective management of community life.

- Stability of employment and income: Stability of local life is ensured.

Table 3: Regression results

	Unstandardized Coefficient		Standardized Coefficient		Sig.		Collinearity Statistics	
	B	Standard error	Beta	t-value			Tolerance	VIF
(Constant)	.734	.267		2.754	.006			
F2	.298	.052	.257	5.708	.000		.826	1.210
F4	.252	.037	.289	6.723	.000		.903	1.108
F7	.190	.033	.242	5.67	.000		.920	1.087
F9	.101	.045	.096	2.231	.026		.901	1.110
F3	-.068	.031	-.098	-2.215	.027		.849	1.178

- Meaning of regression coefficients:

+ When estimation by local residents of F2 (local government) increases 1 point, the community satisfaction rises 0.298 point (because its unstandardized correlation coefficient is 0.298).

+ When estimation by local residents of F4 (Opportunity to get employment and income) increases 1 point, the community satisfaction rises 0.252 point (because its unstandardized correlation coefficient is 0.252).

+ When estimation by local residents of F7 (Stability of employment and income) increases 1 point, the community satisfaction rises 0.190 point (because its unstandardized correlation coefficient is 0.190).

+ When estimation by local residents of F9 (Quality of communications) increases 1 point, the community satisfaction rises 0.101 point (because its unstandardized correlation coefficient is 0.101).

+ When estimation by local residents of F3 (Environment - Health) increases 1 point, the community satisfaction decreases 0.068 point (because its unstandardized correlation coefficient is - 0.068).

3. Conclusion

Results of empirical research show that five

- Environment – Health: Local residents are provided with a clean and healthy environment.

- Quality of communications: Good communications provide local residents with access to employment, health care and other services.

Meanwhile, such non-economic factors as cultural activities and recreations, social order, social solidarity, public utility services, education and vocational training do not affect the community satisfaction. Research results also prove that personal characteristics of respondents, such as gender, age, education, occupation, size of their families and years of living in the locality have no effect on their estimation of the community satisfaction.

4. Policy suggestions

From the research results, we see that full attention must be paid to the following aspects when building sustainable communities in Bến Tre.

Firstly, more efforts must be made to deal with employment and income issues, especially for households that lose their farming land to development of industrial parks. In the coming years, all possible resources from both public and private sectors, especially from companies in the IPs, should be mobilized to provide local peasants and

young laborers with vocational training courses with a view to turning them into workers in IPs and introducing more non-farming businesses to local residents. Plans to develop the IPs must be linked with the plans to build resettlement areas for residents whose land is expropriated.

Secondly, local government should enhance its managerial competence and operate more effectively in the following tasks: (1) doing its jobs according to simple and scientific procedures; (2) changing attitudes of civil servants towards needs of local communities and ability to satisfy these needs within their functions; (3) paying more attention to programs to supply power and water; build schools, health care stations, rural roads; and provide environmental hygienic services based on public participation; (4) carrying out programs to supply vocational training courses to the youth.

Thirdly, to minimize the environmental pollution in neighborhoods surrounding the IPs, the provincial government should see to it that all necessary waste treatment plants are in place before the IPs come into operation. Besides measures to limit the pollution from IPs, the provincial government should pay full attention to the plan to build resettlement areas for residents whose farming land is expropriated, and these areas must be far from the IPs to avoid bad effects from smoke, noise and effluent on the public health.

Fourthly, infrastructure for communications could be developed with investment from both public and private sectors and management of these works are assigned to local governments. Besides grant-in-aid and ODA, the provincial government should adopt policies to encourage private and foreign investment in the infrastructure projects in form of BT contracts. As for district authorities, they must try their best to mobilize investment from economic concerns operating in their districts. As for communes that benefit directly from the infrastructure projects, local authorities can persuade local residents to contribute to development of roads in the commune.

Finally, consistency must be ensured when making plan to develop the IPs.

+ The long-term direction is to make the best use of the stock of land zoned for the IPs and all possible measures should be taken to attract investors. When developing new IPs, planner should be very careful to save as much farming land as possible and ensure feasibility of their plans. Developing IPs of small and medium sizes, especially in areas of low population density, to avoid reducing the farming area is also a good orientation.

+ The consistency reflects itself in an even development of IPs and surrounding districts. Attention must be paid evenly to the building of IPs and development of human resource; machines imported to the IPs and pollutants they may emit; and opportunity to get employment and income and improvements in spiritual life of local communities (cultural works, recreation ground, schools, and hospitals, etc.)■

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