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## Rourkela-an example of co-operative development Aid

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a joint economic policy to be adopted within EEC so as to diminish existing differences. Even if it is impossible to avoid some change in exchange rates due to the devaluation of the dollar, at least existing tax benefits could be removed by adopting a common EEC tax policy, thus ensuring that competition does not become still further distorted.

All in all, it is time for the EEC member countries to make a decisive move away from individual economic policies and towards a policy which enhances the position of the Common Market as an economic unit, thus enabling it to exploit to the full the trading potential of the Common Market and its economic opportunities.

## *Rourkela—An Example of Co-operative Development Aid*

*By Klaus Röh, Brussels \*)*

**"The Observer", London, reported last February to its readers on the Indian steel scenery the following: "The story of the three foreign steelworks in India is like an anecdote about a Russian, an Englishman and a German. At Bhilai, the Russians started with a roar of self-congratulation and are now a bit behind the times. The British at Durgapur were modest and their achievements are still modest. The Germans at Rourkela began in notorious muddle ... and are now far and away the winners." This is certainly a compliment to the achievements of the Rourkela steelworks for its now attained productivity and high profits. One should, however, not forget the many difficulties and shortcomings which the project had to face during its planning and construction phase. Mr. Klaus Röh has for one year personally studied the problems at the spot. His findings will shortly be published in a German monograph "Rourkela als Testfall".**

Rourkela has repeatedly been described as a "test case" of German development aid. With a capital investment of nearly two thousand million German Marks in the first stage, these steelworks constitute the largest foreign project in which Germany dominantly participates. To carry out such a project in a developing country such as India—and above this in one of its most underdeveloped areas—inevitably raises some important problems. This becomes particularly clear in the light of the poor infra-structure and of co-ordination that is required in carrying out an undertaking which at one time involved the employment of nearly 50,000 people.

Yet, the Rourkela project cannot be regarded as a test case within the meaning of a laboratory experiment which was started after deliberately laying down specific requirements. On the contrary: Rourkela is rather an "involuntary test", and this means an attempt dragging into it those who earlier had been nothing more but observers or merely been involved on its fringe.

### *A Dilemma between Planning and Reality*

If the aims of the original intentions were to be put in a few—expost ideal-tinted—words, it could be said: Rourkela was to be the model for creating in a smooth and efficient way the start for an industrial

nucleus. In co-operation between the Indian authorities and private German enterprise steelworks were to be built which right from the beginning would, as national property, be exclusively or almost exclusively be operated by Indian experts; which with the setting up of most efficient and modern plants would be able to meet an essential part of India's steel requirements and thus relieve a vulnerable part of the deficit in the Indian balance of trade.

However, the facts turned out to be completely different. Two of them were significant: the target of building steelworks with a capacity of one million tons of crude steel (or 720,000 tons of rolled steel, respectively) was, contrary to the plans, not reached within three and a half years but only after five and a half; building cost amounted not to DM 1,100 million but may, in comparable investment figures, have been around 1,700 million; and it has to be taken into account that total investments, extending to all by-projects (such as ore-mines, workers' housing etc.) which were not included in the original plans, reached nearly DM 2,000 million.

### *Difficulties during the Construction and Running-in Period*

It would go too far to describe here all the innumerable obstacles and difficulties impeding the construction work. At times they were so great that the German experts had serious doubts whether the project could be brought to a satisfactory completion.

\*) See Klaus Röh: "Rourkela als Testfall für die Errichtung von Industrieprojekten in Entwicklungsländern" will be published by Verlag Weltarchiv GmbH, Hamburg.

Without going into details the following shortcomings during construction can be mentioned:

- ☐ Inadequate planning, co-ordination and organisation;
- ☐ A general deficiency in the existing economic foundations (especially in respect to the building industry and the infra-structure);
- ☐ Lack of skilled labour of every kind;
- ☐ Shortage of foreign exchange for financing construction (this became apparent after the Indian Government dispensed with financial participation of the German Krupp and Demag combines who were originally to act as planners, consultants and suppliers, and after the Indian balance of payments rapidly deteriorated with the beginning of the second five-year plan).

The difficulties during the running-in period of operations—that is after the construction of the works was completed—reached at times similar, almost catastrophic dimensions. Soon after construction was completed some valuable installations were damaged by wrong operating; they had partly to be dismantled owing to the shortage of spare parts; or lacking maintenance led to their rotting away. Production reached at best only one third of scheduled capacity.

More generally the shortcomings in the running-in period can be described as the effect of time-lags in the development of the various operational functions; some of the delays were comparatively short, others lasted over several years. The most significant causes—as far as they can be summarised—were the following:

- ☐ Inadequate planning and co-ordination of works management;
- ☐ The lack of skilled labour (especially of those responsible for operational direction);
- ☐ Deficiencies in the supply of raw material.

### *Optimum not Reached*

The development of Rourkela as a start for an industrial nucleus (as far as one single steelwork can already be called a start) thus presents a rather negative picture in the period of its construction and running-in operation. True enough: to regard something as "negative" always depends on from what angle the observer looks at it. Therefore, the view could, on the other hand, be taken that the mere fact that under given conditions the works could be built at all was in itself a magnificent achievement. Measured by European technical standards, highly modern and technically and economically synchronised works arose at Rourkela; they contained such highly developed plants as, at the time of their setting up, largely did not even exist in Germany; and especially during their assembly a performance was frequently achieved which under the prevailing climatic conditions could be regarded as astounding. In spite of all this the completed project remained far from what ex post might be thought to be its optimal performance. During construction and initial operation it was obviously not possible to synchronise with a minimum of friction the factors that are essential for creating such an industrial nucleus—these factors are

raw material resources and labour on the part of the developing country, and operational equipment, funds, and organisational know-how on the part of the aiding industrialised country.

However, it stands to reason that this study crudely simplifies the situation. It neglects the impact of unskilled Indian labour and altogether the Indian contribution to the construction of the works. But it serves to elucidate the whole problem.

Where now are the causes for this development to be found? Two points are particularly striking: First there are the causes proper; secondly there was the quasi-automatic process by which—though not completely and with some delay—these causes were adjusted, enforced in a way by the project itself.

### *Faulty Co-operation*

The causes for the difficulties in developing Rourkela are mainly to be found in the shortcomings in establishing co-operation and in the faults in the "organisational basis" of the project. The reasons again for this state of facts arise from the historical constellation and the divergence of interests which the Indian Government and the German enterprises pursued when co-operation between them was established in 1953-1954. The Indian Government was interested in building steelworks and in building them as far as possible from its own resources and in using as little foreign participation or aid as possible. But guided more by wishful thinking than by realistically founded considerations, India largely overrated her own capacity in the technical and organisational fields. On the other hand, the interest of the German private firms who initially were the sole German partners was centred not on financial partnership in the steelworks project or partnership as entrepreneurs but on selling industrial plant. Thus it came about that only too soon the main responsibility of organising and making decisions largely rested with the Indian partner whose insufficient experience made him, of course, badly qualified for such tasks; while the influence the German firms could exercise in their position as suppliers and consultants was much too small. In all practical questions at dispute the German private firms whose attitude was determined mainly by commercial and marketing considerations time and again found themselves in a weaker position vis-à-vis the Indian Government. This was all the more the case since they were not linked together in a consortium and could not act jointly.

Thus the contribution of the German firms to removing the difficulties the Indian partner had to face in fulfilling his task could only be comparatively modest (such as the establishment of a building enterprise when the Indian building industry proved inadequate for constructing the foundations of the plants).

In addition, the German contribution was right from the beginning confined only to one part of developing the operational functions, i.e. the function of production, and even in this field it was mainly concentrated on supplying part of the operational means, i.e. equipment and plants. The German firms had almost no say in the decisive question how to organise operations, and in respect of an equally important question—the

supply and training of skilled personnel—their task was only marginal and inadequately performed.

### *Government Aid as a Way Out*

This is why the German Federal Government became of necessity involved in the project and why, for various reasons of domestic and foreign policy, it decided to take part in it. The start of its co-operation became necessary when, owing to India's shortage of foreign exchange, the whole enterprise seemed to be in serious danger and the German firms found it impossible to arrange the exceptionally large credits of DM 660 million which were required. Having made appropriate credits available, the German Government had to intervene a second time when in the initial stage of operations glaring deficiencies in the steelworks' personnel began to have disastrous effects. This called for the urgent despatch of German experts to India who were paid by the German Government, German firms and the Indian Government.

However, it soon became clear that these German experts, designated as "consultants" but lacking precise terms of reference, were, without sufficient backing, bound to remain as ineffective as the German company of consultants had been during the construction period. At best, the experts were able to improve some details but could not succeed in bringing about the urgent change in management that was needed. Thus the German Government felt compelled once more to take action. It was in a favourable negotiating position since India had asked for credits for what she regarded as an imperative expansion of the steelworks. After receiving a report from the so-called "Solveen Commission"—a group of German experts under a senior German Government official which had been sent to Rourkela—the Federal Government stipulated the conditions on which it was prepared to finance the expansion of the project: they included the main condition that expansion must not begin before the planned first-stage capacity of one million tons of crude steel per annum was reached. There were, however, equally important secondary conditions which concerned the running of the steelworks especially the problem of supplying spare parts and which so far had not been accepted as an urgent necessity despite previous insistence on them by the German experts at Rourkela. Production began to improve only after the German "operational team" had received this kind of support at Government level, which was, moreover, strengthened by repeated visits to Rourkela by the head of the German delegation.

### *Rourkela Today*

Summing up the results in general terms, it can be said that out of a situation which proved to be totally unbalanced resulted new forces which using the existing creative power and willingness led to the stabilisation of the situation. The strongly developing own dynamics of the project itself enforced the steady creation of new initiatives on the side of those responsible concerned and brought eventually the overcoming of the many obstacles in the project's path leading to its final success.

Now, after all, Rourkela attained its scheduled output and more. The metallurgical year (Nov. 64 to Oct. 65) was marked by an allround high performance.

G.-P. MAISONNEUVE ET LAROSE  
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Vient de paraître:

## LE RIZ

par

A. ANGLADETTE

Ingénieur agronome

Un vol. 16×25, 932 pages, 220 tableaux,  
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### Sommaire

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Prospectus détaillé sur simple demande

All the units of the plant maintained production during this period well above the rated capacity. In some of the units production was as high as 135 and 137% of their rated capacity (one day in October 1965 blast furnace output reached 167% even). The blast furnaces, which had always been a special "sick child", reached with 1.1 million tons 118% of the rated capacity, while the corresponding figures for the coke ovens were 1.2 million tons and 101%. Of particular significance is the improved performance by the rolling mill. There production had time and again been adversely affected by deficiencies in sections on which the rolling mill depended. Thus output of the blooming and slabbing mill, where previously various stoppages had occurred, rose to 910,518 tons or 105% of the original target. The output of the plate mill increased to 178,648 tons (105% of rated capacity), that of hot rolled coils to 656,152 tons (109%) and that of rolled cold sheets to 171,859 tons (101%). The finished steel output registered last year was 794,909 tons, a 26% increase over the previous year's figure of 626,247 tons. As the above figures indicate, this was not a case of short-lived records, later to be nullified by output shortfalls, but the figures obviously represented a steady output level.

High production figures, of course, not necessarily mean a very profitable enterprise. But (allowing for

the reserve with which such figures in an economy with State-fixed prices have to be treated) it seems that its performance improved substantially. According to a report of the Hindustan Steel Ltd. at a board meeting in Calcutta the profit figures of Rourkela for the year 1964/65 were the best of the different units of HSL. Rourkela Steel Plant showed a profit of Rs. 35.02 million against Rs. 5.33 million in Durgapur and 5.03 million in Bhilai. Even after the adjustment by depreciating the fertiliser units loss, the Rourkela Steel Plant, with Rs. 8.73 million, is leading in public sector steel plant profits.

One of the main reasons for Rourkela's outstanding profits last year, compared to other plants in the public sector, is labour. Per-capita labour productivity at Rourkela continues to be the highest among the steelplants in India. Average per-capita productivity of ingot-ton per year at Rourkela continues to be above 75, compared for example to less than 60 at Bhilai.

What lies behind this obvious breakthrough of the Rourkela enterprise in spite of all the negative forecasts by experts?

### *Better Co-operation — the Key to Success*

The decisive factor for this development, which became apparent from 1962/63 onwards, was probably the new form of partnership aided by the German Government which, as indicated above, led to a deeper German involvement but, above all, to more efficient co-operation.

This co-operation worked not only in the first stage of operations but also during the period of expansion which at its present stage has been aiming at an increased capacity of 2.5 million tons of crude steel per annum (while simultaneously expanding the programme of finished steel products) and which may be looking to an ultimate capacity of 3.6 million tons of crude steel a year.

It would doubtlessly be tempting to compare the present cooperation with what it was during the first phase of the Rourkela project (which aimed at creating a capacity of one million tons of crude steel). But this would go beyond the scope of our brief study. Generally speaking, two trends can be discerned in the current phase of co-operation which has set itself a target capacity of 2.5 million tons: for one thing, India has been making a more valuable and highly skilled contribution. This applies primarily to the design work during the expansion phase—a task which has largely been in the hands of a bureau of consultants forming part of the nationalised steel company "Hindustan Steel Limited"—i.e. the Central Engineering and Design Bureau in Ranchi/Bihar, staffed by 150 Indian experts. The experience gained during the first phase at Rourkela has apparently led to the recruitment of a staff of indigenous experts on design.

A second trend of the expansion phase appears to be the improved organisation of the German side: the creation of appropriate agencies seems to have greatly improved the co-ordination of German supply firms; and the management and supervision of constructional activities at Rourkela itself has been handed over

to a staff of experts under German control. This staff, forming part of the aforementioned Central Engineering and Design Bureau, has much greater authority than had the former Krupp-Demag association in India (which was only a consultative body). It also has a larger number of highly qualified men than were available to Hindustan Steel Limited during the first phase.

Lack of detailed documentation makes it impossible to give an accurate picture of the recent co-operation between Indians and Germans in the operation of the "Phase-One" steelworks. But favourable views plus the aforesaid production figures allow the conclusion that the efforts of the past few years have been fruitful. As far as Germany is concerned they have meant that, apart from the Federal Government's intervention, a much more careful selection and training of German personnel have taken place than during the early construction period.<sup>1</sup>

Finally mention must be made of Germany's wider participation in ancillary aspects of the steel project. Thus there is now a German cultural centre (Goethe Institute) in Rourkela. Indian and German culture and ways of life impinge on each other in this town and need for such an institution had long been felt by many intelligent people. Then there are various groups of German research workers who have been dealing with sociological problems (especially the sociological implications of town life in Rourkela) which have become acute as the new town is growing side by side with the old town.

### *Difficulties of Comparison with Similar Steel Projects*

Not only in view of the favourable raw material and market situation but also in the light of its more recent progress and its actual achievement it can be affirmed that the project is economically justified as part of the world's growing industrialisation. Another question, also linked with the Rourkela project, is how far, after the disappointing experience of the first few years, a suitable form of co-operation between an industrialised and a developing country has now been evolved. The answer to this cannot yet be given because things are still in a state of flux. Nor can we say whether or not the present type of collaboration is really suited to serve as a model of partnership in such projects and whether, despite being a noticeable improvement on the original effort, it is not still a mere second-best solution.

A further related aspect—though it lies outside the scope of this study—is: what, if any, better ways of co-operation have been tried out at other, comparable steelworks? Some comparison suggests itself with the neighbouring project of the steelworks at Bhilai which has been undertaken with Russian help, and with the works at Durgapur with which Britain is associated. Time and again rather futile comparisons have been made between the three projects at Rourkela, Bhilai and Durgapur. They were based on very slack foundations since there are such great differences in the structure of the three steel-

<sup>1</sup> It remains to be seen whether the early reduction in the number of German experts at the works to less than one hundred and the replacement of the German technical director by an Indian expert will prove beneficial.

works. But it may be of interest to look at the way how co-operation between India and its foreign partners has shaped. Such a comparison would undoubtedly be of very great use indeed. But here it cannot be attempted, if for no other reason than lack of documentation. It seems—and this can only be indicated with caution—that in Bhilai and Durgapur the foreign partners were from the very beginning given a greater say in the setting up and running of the projects than it was the case at Rourkela—a trend which found concrete expression for instance in the appointment of an Englishman as director-general at Durgapur. It must be left open, however, how far this apparently wider sphere of influence of the foreign partners has in fact led to better co-operation and better economic long-term results.

### *A Round-About Way to Success*

The Rourkela test case, therefore, presents the picture of a project the realisation of which was endan-

gered but not frustrated by numerous obstacles. Evidently every difficulty acted as a lever on all participants to work out and accept new solutions in an enterprise in which they had all become involved. Given different circumstances, some of these costly and time-consuming detours could, it is true, have been avoided. The case of Rourkela thus makes it clear how essential it is to find a form of efficient co-operation between a helping industrialised country and an emergent developing country. It must be a type of co-operation that meets the objective needs of such a project and, at the same time, while making maximum use of the resources of the developing country, takes into account its political and national conditions. Furthermore, Rourkela shows what a decisive role the Government of the industrialised country can play towards the success of an undertaking which was originally launched singlehanded by its private enterprises. It demonstrates, too, how cautiously a Government must proceed.

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## *World Business Trends*

### *United States: Continuing Economic Growth*

During the last months the speed of economic growth in the United States should have slowed down but slightly. Although in the automotive industry output has been reduced the other important industrial branches experienced a vigorous boom. The unbroken force of demand factors points at a continuation of the economic expansion at the present speed. Above all public expenditure on goods and services as well as capital expenditure of the economy will continue growing as much as hitherto during the next months. Also for the future it should be possible to cover the vigorously increasing all-out demand without too many tensions. The recently somewhat more pronounced upward trend in prices will hardly accelerate. Taking one thing with another in 1966 there can be anticipated an increase of the gross national product which, by 5 to 5.5% is similarly high as the one in 1965.

The private households' propensity to purchase more is continuing. The buyers' reserve as regards motorcar purchases is no contradictory evidence since it is a re-

sult of special developments (more expensive instalment credits, discussion of additional safety devices). It is true, though, that at present consumption expenditures are rising somewhat less than incomes, for in the beginning of the year private households responded to the increase of social contributions and taxes with a low rate of saving. During the last months, however, the saving ratio should have grown again leading to a slower increase in consumption. The adjustment having come to an end the expenditure of private households will again rise continuously.

The necessity of expanding production capacities, together with rising profits and a positive judgement as to the business trend, has caused the enterprises to extend their investment programmes once more. While at first they had intended to increase their expenditure on new plant and equipment by 8% from 1965 to 1966, now according to the most recent inquiry they are planning to expand their capital expenditure by 17%. This new expansion of their investment programmes would prob-

ably have been even greater if some corporations had not postponed, owing to government intervention, part of their planned investments. Above all the mechanical engineering and transport industries (excluding motor vehicles) are planning a considerable increase of their fixed investments. In the steel, non-ferrous metal, and automotive industries, on the other hand, the propensity to invest has declined during the last months.

By public authorities, vigorous influences of expansion will be created also in the further course of the current year. Defence expenditure, for instance, should not—as originally planned—remain limited to its present volume. After an increase by \$ 3,000 million in the first quarter of 1966—the annual growth rate adjusted for seasonal variation—increases of \$ 2,000 million for each of the following quarters are being anticipated. However, a balancing by cutting down expenditure on civil purposes is impossible because otherwise objectives aimed at by the "Great Society" programme would have to be given up. In an election year the Government also refuses tax increases that might lead to a drastic reduction of private demand.