



तकनीकी पत्रिका विषय-सूची

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Vol.6 No.09, September, 2022

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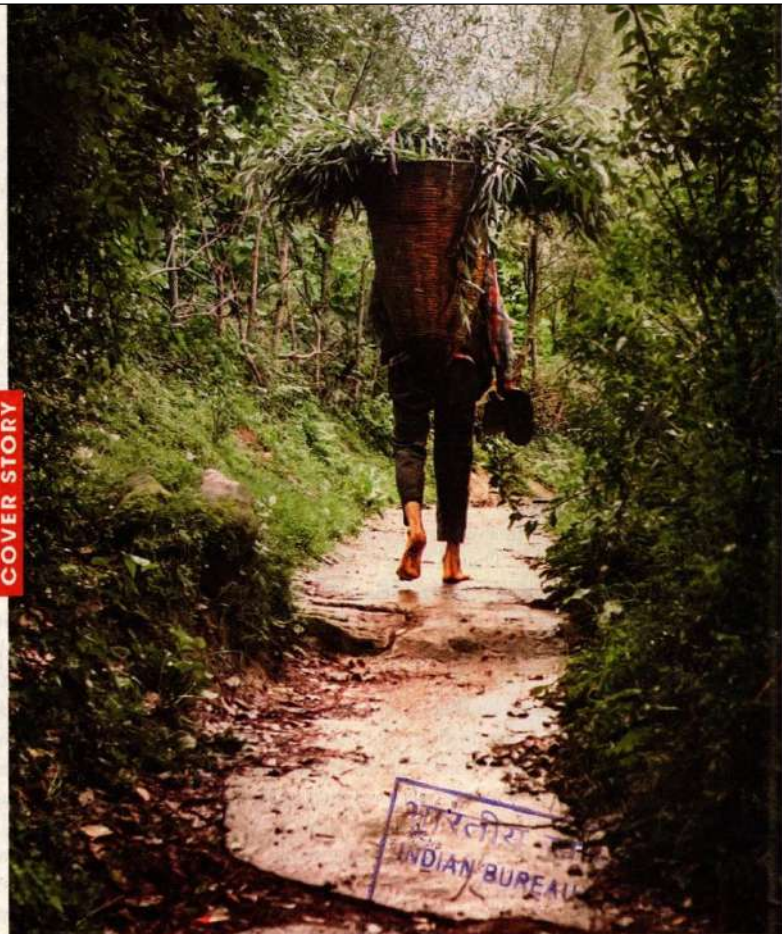
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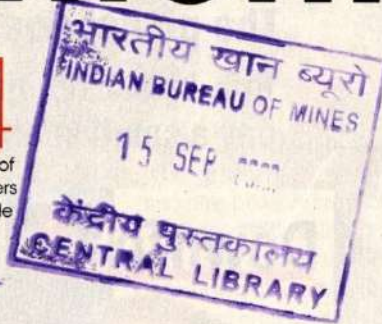


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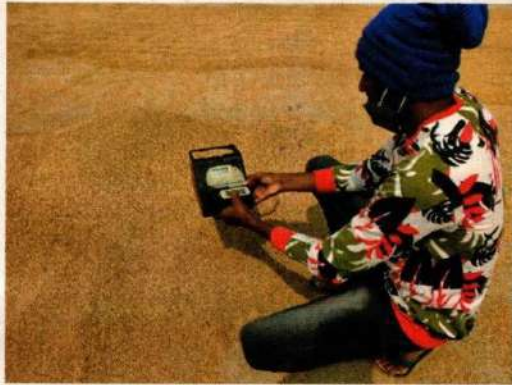
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A handbook of primary commodities in the global economy · Third Edition, Marian Radetzki and Linda Wårell. Cambridge University Press, Cambridge 2021. ISBN (hardback) 978-1-108-84,154-2, ISBN (paperback) 978-1-108-97,091-4
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