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Arbitration in Biotech Technology Transfer Disputes: Legal Insights

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Abstract

Arbitration is one of such dispute resolution mechanisms that provides parties an opportunity to resolve their disputes through a private and efficient mechanism. The party autonomy is preserved, unlike the traditional court. Technology transfer license agreements is one of the ways which facilitates the use, means and distribution of various scientific developments and innovations developed by researchers and scientific scholars. It indeed play a vital role for the commercialisation of discoveries or inventions. These are applicable to every industry including stakeholders using and employing biotechnology in their industrial setup. Due to the legal intricacies and technical nature of these agreements which are entered upon by the concerned stakeholders, disputes often occur within the realm of biotechnological inventions and technologies. This obviously need efficient dispute resolution procedures in fast and easy mechanism without much hardship on the end of scientists or industry owners. This research study investigates as well as analyses the use of arbitration in settling biotech technology transfer disputes in the State of West Bengal in India which predominantly have a large number of Industries concerned with issues in the biotechnology sector within the district of Paschim Bardhaman.

Keywords

Arbitration, Biotech Disputes, Law, Licensing Agreements, Technology Transfer.

Introduction

The technological upgradation in the biotechnology sector has been enormously playing an indispensable role in bringing out developments across various fields such as healthcare, agriculture, and environmental sustainability.⁴ Rapid advances in biotech and its allied fields, varying from cutting-edge medical treatments and diagnostic tools to organically modified crops and biofuels, have changed our approach to resolving various global concerns.⁵ The ever-demanding nature of this domain extensively needs a non-stop introduction of different innovative methods, often backed by the transfer of vivid technology

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⁴ Rastegari, Ali Asghar, Ajar Nath Yadav, and Neelam Yadav, eds. *New and future developments in microbial biotechnology and bioengineering: trends of microbial biotechnology for sustainable agriculture and biomedicine systems: diversity and functional perspectives*. Elsevier, 2020.

⁵ Davis, C. V. "Biotech Breakthroughs: Paving the Way for a Healthier Tomorrow." *International Journal of Research and Review Techniques* 2.2 (2023): 1-6.

agreements or arrangements.⁶ These agreements in the form of instruments play a very major part in the way of commercialization and expanded adoption of advanced biotech problem-solving methods. This efficiently covers the distance between research and practical application in ground reality.⁷

However, the application of commercialization systems in biotechnology often leads to critical, complex and multidimensional intellectual property rights (IPR) issues.⁸ Technology transfer licensing agreements generally depict extensive norms and clauses related to patents, trademarks, trade secrets, proprietary technologies, and many more intellectual properties backed by legal guidelines and regulations.⁹ The crucial nature of these agreements comes from the need to transparently pinpoint the rights and obligations of the associated parties. It presides over the risks entangled with intellectual property rights (IPR), and establishes conformity to legal and regulatory standards.¹⁰ Accordingly, the probability of disagreements is significant, and the stakes are high. Constructive and implicit apparatus for dispute resolution is hence vitally important in establishing concrete and strong business ventures and assuring that the best interests of all stakeholders are protected enough from any probable breach.¹¹

Arbitration has been embellished as a favourite mechanism for wiping out the mismatches and conflicts in the biotechnology arena, due to its winning features over orthodox litigation procedure.¹² Unlike court proceedings, arbitration puts forward a mouldable system customized to the distinct requirements of all the related beneficiaries.¹³ This flexibility incorporates the nomination of arbitrators¹⁴ with having extraordinary potential and skills to deal with biotechnology conflicts or disputes lawfully, which can be a boon in settling out numerous technological disagreements.¹⁵ Moreover, arbitration tends to maintain a certain pace of circumspection which is mandatorily needed in the biotech industry; where the preservation of sensitive data, facts, and trade secrets is of prime importance.¹⁶ The non-public character of arbitration helps in the conservation of business ties and brings out a more collective perspective to

⁶ Hagedoorn, John, and Geerte Hesen. "Contract law and the governance of inter-firm technology partnerships—An analysis of different modes of partnering and their contractual implications." *Journal of Management Studies* 44.3 (2007): 342-366.

⁷ Mireles, Michael S. "An examination of patents, licensing, research tools, and the tragedy of the anticommons in biotechnology innovation." *U. Mich. JL Reform* 38 (2004): 141.

⁸ Kumar, Nishant, Reetu Gour, and Navneet Sharma. "Intellectual Property Rights and Economical Development: A Brief Overview." *Journal of Scientific Research and Reports* 30.5 (2024): 145-162.

⁹ Mireles, Michael S. "An examination of patents, licensing, research tools, and the tragedy of the anticommons in biotechnology innovation." *U. Mich. JL Reform* 38 (2004): 141.

¹⁰ Singh, Kshitij Kumar. *Biotechnology and intellectual property rights: legal and social implications*. Springer, 2014.

¹¹ Bartkus, Mary E. "Dispute Resolution Provisions in Life Sciences Agreements." (2020).

¹² Hilmer, Sarah E. "Arbitration Clauses in biotechnology related contracts from a Hong Kong institutional perspective." (2008): 133-142.

¹³ Zekos, Georgios I. *Developments on Courts' Involvement in Arbitration. Volume 2: Courts and Law*. Nova Science Publishers Incorporated, 2019.

¹⁴ Halket, Thomas D., ed. *Arbitration of international intellectual property disputes*. Juris Publishing, Inc., 2012.

¹⁵ Mills, Oliver. *Biotechnological inventions: moral restraints and patent law*. Routledge, 2016.

¹⁶ Bender Jr, Raymond G. "Arbitration-An Ideal Way to Resolve High-Tech Industry Disputes." *Dispute Resolution Journal* 65.4 (2010): 44.

dispute resolution.¹⁷ Therefore, arbitration has achieved prestige as an effective and efficient medium of clearing out conflicts and disputes arising from technology transfer licensing agreements. It suggests a more reliable alternative to traditional litigation.¹⁸

The biotechnology arena has long been a guidepost of revolution, carrying out relevant innovations in healthcare, agriculture, and environmental ecosystem.¹⁹ By instigating unique medical therapies, introducing genetically grown and sustained crops, and discoveries of biofuels, biotechnology points out some of the most concerning global issues.²⁰ As the sector grows and enlarges, technology transfer licensing agreements have become necessary for commercializing these advancements. It covers up the long distance between groundbreaking theoretical research and realistic practical application.²¹

The dual feature of biotechnology often gives birth to rigid intellectual property (IP) issues, making technology transfer licensing agreements exceptionally difficult.²² These agreements need hardcore stewardship of patents, trademarks, trade secrets, and proprietary technologies, figuring out a crystal clear representation of the rights and obligations of the associated stakeholders.²³ This difficulty can escalate the happenings of a mismatch of thoughts, reflecting the urge for effective dispute resolution approaches to conserve business ventures and protect the best interests of the beneficiaries.²⁴

Arbitration has come up as a more viable substitution to the traditional approach of litigation for settling out disputes in the biotechnology arena.²⁵ It brings out a personally dedicated, less time-consuming, and more economical approach, which is obviously beneficial for high-tech and biotech conflicts that are mostly highly technical in nature.²⁶ Arbitration provides space for the selection and appointment of arbitrators with specialized experiences in settling out biotechnology issues, assuring the problem-solving

¹⁷ Kennett, Wendy. "Arbitration of intra-corporate disputes." *International Journal of Law and Management* 55.5 (2013): 333-360.

¹⁸ Mishra, Gaurav. "A Study of the Evolution of Universal Intellectual Property Rights over Time and Their Growing Importance in Commercial Transactions." *Jus Corpus LJ* 3 (2022): 40.

¹⁹ Fisher, Ryan J. "Ecolawriors: Knights of the Green Law Consciousness." *Global Jurist* 22.3 (2022): 493-515.

²⁰ Herdegen, Matthias. *The international law of biotechnology: human rights, trade, patents, health and the environment*. Edward Elgar Publishing, 2023.

²¹ Ferguson, Steven M., and Uma S. Kaundinya. "Licensing the technology: biotechnology commercialization strategies using university and Federal labs." *Biotechnology Entrepreneurship*. Academic Press, 2020. 199-222.

²² Falcone, Anna. "Synthetic Biology, Biotechnology Patents and the Protection of Human Health. A Consideration of the Principals at Stake." *Synbio and Human Health: A Challenge to the Current IP Framework?* (2014): 55-76.

²³ Kokkoris, Ioannis, and Claudia Lemus, eds. *Research Handbook on the Law and Economics of Competition Enforcement*. Edward Elgar Publishing, 2022.

²⁴ de Beer, Jeremy, et al. "Regulation for Innovation." (2022).

²⁵ Laad, Aakash, and Mayank Gaurav. "Arbitrating IPR and Competition Law Disputes in India: Issues, Scope and Challenges." *Indian JL & Pub. Pol'y* 6 (2019): 26.

²⁶ Rauer, Viktor. "The EU reinvents the wheel: A study on the challenges of the Arbitration and Mediation Centre in the Unified Patent System." (2020).

process.²⁷ This approach replenishes the technical complications of biotech disputes more wisely than conventional court proceedings.²⁸

The World Intellectual Property Organization (WIPO) upholds the adoption of arbitration approaches in technology transfer agreements, enlightening its adaptability for settling intellectual property disputes.²⁹ WIPO's arbitration structure provides a systematic direction to such disputes, focusing on the benefits of arbitration in administering the distinctive issues connected with biotechnology and intellectual property.³⁰ The elasticity of arbitration procedures and the high potential to curb out the process to dedicated necessities donates to its expanding undertaking in the biotech sector.³¹

The uprising in arbitration cases related to biotechnology reflects the sector's potential growth and increasing dimensional aspects. In 2013, WIPO reported that 15% of the cases filed with its Center for Alternative Dispute Resolution were associated with biological sciences disputes. This tendency remained unchanged with the International Centre for Dispute Resolution (ICDR) picking out pharmaceutical and biotech disputes as one of the most crucial caseload categories. The ICDR reported a 27% hike in such disputes in 2019, enlightening the expanding presence of arbitration in this field.³²

By 2022, the ICDR's report figured out that biological science-related arbitrations had the highest claim amounts by industry, reaching \$466 million, a 36% hike from the last year.³³ This remarkable jump in claim amounts is dedicated to the increasing figures of qualified materials and the sector's globalization. The increment in biological science-related arbitrations identifies the sector's growing footfalls and the related demand for efficient dispute-resolution approaches.³⁴

Moreover, confidentiality is another prime merit of arbitration, particularly in the biotechnology sector, where trade secrets and sensitive information are generally associated. Arbitration guarantees that disputes are taken care of in a more secret manner, conserving the credibility of proprietary information and

²⁷ Peel, Jacqueline. "The use of science in environment-related investor-state arbitration." *Research Handbook on Environment and Investment Law*. Edward Elgar Publishing, 2019. 244-263.

²⁸ Dessain, Scott, and Scott E. Fishman. *Preserving the promise: Improving the culture of Biotech investment*. Academic Press, 2016.

²⁹ Surendran, Nanda, and S. Mini. "Arbitration as a means to resolve Intellectual Property Disputes." (2021).

³⁰ Christie, Andrew F. "WIPO and IP dispute resolution." *Research Handbook on the World Intellectual Property Organization*. Edward Elgar Publishing, 2020. 264-282.

³¹ Babaoglu De Bruyne, Basak. *The Assessment of Gene Patents Granted in Medical Biotechnology Area in the EU and the US: A Law and Economics Approach*. Diss. Staats-und Universitätsbibliothek Hamburg Carl von Ossietzky, 2021.

³² "Life Sciences Arbitration." *LabGold Law*, <https://www.labgoldlaw.com/life-sciences-dispute-resolution>. Accessed 25 May 2024.

³³ "Life Sciences Arbitration." *LabGold Law*, <https://www.labgoldlaw.com/life-sciences-dispute-resolution>. Accessed 26 May 2024.

³⁴ Babaoglu De Bruyne, Basak. *The Assessment of Gene Patents Granted in Medical Biotechnology Area in the EU and the US: A Law and Economics Approach*. Diss. Staats-und Universitätsbibliothek Hamburg Carl von Ossietzky, 2021.

business ventures.³⁵ This secrecy benefit makes arbitration a most demanding choice over traditional litigation, which is normally public and may uncover sensitive information.³⁶

The productivity of arbitration in biotech disputes is also dedicated to the probability of appointing arbitrators with extraordinary expertise. Traditional courts may miss out on the technical know-how essential to settle complex biotech disputes, whereas arbitration allows beneficiaries to nominate arbitrators who are well-versed in biotechnology and intellectual property law.³⁷ This extraordinary feature dedicates to more sophisticated and errorless resolutions, reflecting the unique dynamics of biotech disputes more vibrantly.

In India, arbitration has been rapidly acknowledged as a sustainable dispute resolution approach, parallel with international standards.³⁸ The Arbitration and Conciliation Act of 1996 administers arbitration proceedings in India, pointing out the UNCITRAL Model Law and encouraging the adoption of arbitration across various sectors, including biotechnology.³⁹ The recent modifications to the Act have focused on making arbitration more economical and user-friendly, further encouraging its adoption.

The alarming adoption of arbitration in India reflects global tendencies and points out its ability to address conflicts in specialized fields like biotechnology.⁴⁰ These modifications are developed to direct concerns associated with arbitration, such as time-consuming procedures and the need for greater limpidness, making arbitration a more tempting substitute for settling technology transfer conflicts. This inclination towards arbitration points out a broader adoption of its merits and its huge potential to deliver relevant dispute resolution in the biotech industry.⁴¹

Methodology

This study employs doctrinal research to go through existing literature, legal texts, and survey results related to arbitration in technology transfer agreements, with an aimed focus on biotech disputes. The research pinpoints on primary sources such as authoritative books, peer-reviewed journals, legal databases, and reports from international councils and organizations. This methodological approach

³⁵ Kim, Daria. "Protecting trade secrets under international investment law: what secrets investors should not tell states." *J. Marshall Rev. Intell. Prop. L.* 15 (2015): i.

³⁶ Margellos, Theophile, et al., eds. *Mediation: Creating Value in International IP Disputes*. Kluwer Law International BV, 2016.

³⁷ Steier, Gabriela, and Kiran K. Patel, eds. *International food law and policy*. Springer, 2016.

³⁸ Greenberg, Simon, Christopher Kee, and J. Romesh Weeramantry. *International commercial arbitration: an Asia-Pacific perspective*. Cambridge University Press, 2011.

³⁹ Halket, Thomas D., ed. *Arbitration of international intellectual property disputes*. Juris Publishing, Inc., 2012.

⁴⁰ Sukul, Shivankar, and Devang Bansal. "Indus Biotech v. Kotak India Venture-Failed Attempt to Reconcile Insolvency and Arbitration Regime." *GNLU L. Rev.* 8 (2021): 274.

⁴¹ Benton, Gary L., and Steven K. Andersen. "Technology arbitration revisited." *Dispute Resolution Journal* 74.4 (2020): 1-25.

provides a robust theoretical milestone for understanding the legal structure administering arbitration in these agreements, while also enlightening major issues and challenges within the sector.

Alongside doctrinal research, non-doctrinal methods were taken into consideration to gather empirical data. Approaches such as snowball sampling, direct interviews, telephone calls, and observation were adopted. The study was executed across major industrial zones in Paschim Bardhaman, West Bengal, including locations like Durgapur I.E., Durgapur Ph-II, Durgapur EPIP, Panagarh Industrial Park, Raniganj Aluminium & Non-ferrous Metal Park, Salanpur Industrial Park, ADDA Industrial Estate at Kanyapur in Asansol, and Andal.⁴² These non-doctrinal approaches provide practical facts into the establishment and relevance of arbitration in technology transfer agreements, capturing the dimensions of industry stakeholders and legal practitioners.

Limitation

That in the present study, the data was collected from a specific geographical location, especially within the District of Paschim Bardhaman. There were certain limitations such as access to all the industries in the area. Additionally, the advocate participants were chosen from a pool of advocates who are generally practicing in the concerned courts and are emplaned with Industries. The data was collected from a sample based on snowball sampling with limited access to resources and budget constraints.

Analysis

Paschim Bardhaman, situated in the western part of West Bengal, stands as an extremely productive industrial district. Famous for its multifaceted economic activities, it boasts extensive industrial zones. Within this district lie major industrial areas such as Durgapur I.E., Durgapur Ph-II, Durgapur EPIP, Panagarh Industrial Park, Raniganj Aluminium & Non-ferrous Metal Park, Salanpur Industrial Park, and ADDA Industrial Estate at Kanyapur in Asansol, as well as Andal. These zones encompass a wide range of industries, from manufacturing to heavy engineering, underscoring the district's pivotal role in the regional economy.

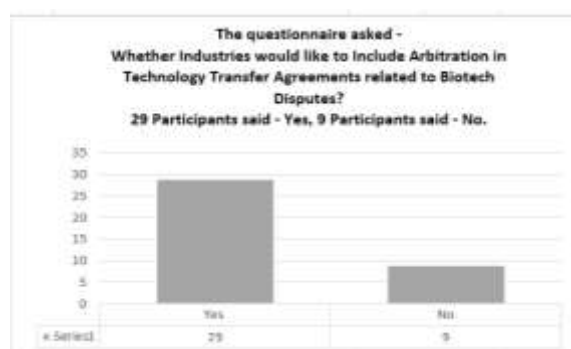
The district's industrial development has been benchmarked by the upgradation of a solid legal infrastructure discovered to imbalance its business culture. Paschim Bardhaman houses various courts and legal institutions, including the Durgapur Sub-Divisional Court, the Commercial Court at Asansol, and several revenue courts and offices. These institutions take cares of a broad array of legal matters, especially those associated with commercial disputes and conflicts. Numerous local legal practitioners are

⁴² Paschim Bardhaman District Profile 2017-18. MSME Development Institute, Kolkata, <http://www.msmedikolkata.gov.in/uploads/2021/03/districtprofiles/2017-18/PASCHIM%20BARDHAMAN.pdf>. Accessed 28 May 2024.

tied up with these courts, many of whom are empanelled or hired by the industrial outlets operating within the district.

A survey focused at identifying the practical development and adoption of arbitration in technology transfer agreements was being taken among 50 to 60 major industries in Paschim Bardhaman. Out of these, 38 industries actively participated. The questionnaire sought to gauge the industries' attitudes towards arbitration in biotech-related technology transfer agreements and the occurrence of prevalent arbitration clauses in their agreements.

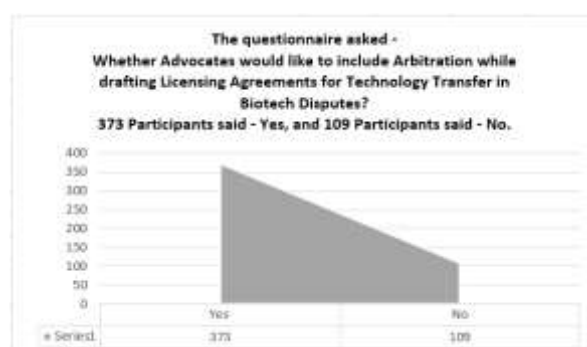
The survey reports uncovered a majority preference for including arbitration clauses in technology transfer agreements related to biotech disputes, with 29 out of 38 industries expressing this inclination. This favouritism shows the perceived merits of arbitration, such as efficiency and specialized expertise. Conversely, 9 participants shows that they would not favour including arbitration clauses.



Regarding the existence of arbitration clauses in existing agreements, only 4 out of 38 industries reported having such clauses already in place, while 34 industries did not. This inequality suggests that inspite a general preference for arbitration, the real implementation of arbitration clauses in existing agreements remains relatively lesser. This gap reflects a potential area for upliftment, as industries could gain from integrating arbitration provisions into their agreements to better manage potential disputes.



The survey was conducted on 482 advocates practicing in Paschim Bardhaman across various courts and revenue offices. The focus was to gauge legal professionals' views and mindsets on including arbitration in licensing agreements for technology transfer, particularly in biotech disputes. The survey showed that 373 out of 482 advocates agreed for the inclusion of arbitration clauses, while 109 did not. This overwhelming support from the legal fraternity aligns with the industries' preference and underscores the recognition of arbitration's benefits in resolving complex disputes.



Analysis of these survey results reveals a clear move towards arbitration within both industry and legal circles. The high level of support from advocates and industries alike suggests a strong potential for increased adoption of arbitration in technology transfer agreements. However, the low incidence of existing arbitration clauses in agreements points to a need for greater awareness and implementation of arbitration provisions.

Statistical analysis of the data supports these observations. The proportion of industries favouring arbitration (29 out of 38) represents approximately 76%, while the percentage of advocates supporting arbitration (373 out of 482) is around 77%. These figures indicate a consistent trend towards favoring arbitration across both industry stakeholders and legal professionals.

To project future trends for both industries and advocates in Paschim Bardhaman regarding the adoption of arbitration in technology transfer agreements, we can utilize regression analysis based on the survey data collected. The aim is to predict how the preferences and practices might evolve over the next five years.

Regression Analysis

Data Collection and Variables include,

Dependent Variable 1: Proportion of industries favoring arbitration (current value: 76%).

Dependent Variable 2: Proportion of advocates supporting arbitration (current value: 77%).

Independent Variable: Time (years), ranging from the current year to five years into the future.

Model Selection is as follows:-

A linear regression model will be used to predict the future trends. The model assumes that the adoption of arbitration will follow a linear trend over time.

Industry Trends Projection

Current Data:

Proportion favoring arbitration: 76% (29 out of 38).

Regression Analysis:

Using linear regression to estimate the trend in the proportion of industries favoring arbitration over the next five years.

Regression Equation:

Let Y_i represent the proportion of industries favoring arbitration at year i .

The model can be expressed as:

$$Y_i = \beta_0 + \beta_1 * i$$

where:

- β_0 is the intercept (current proportion).
- β_1 is the slope (rate of change per year).
- i is the number of years into the future.

Historical Data Insight:

Assuming historical data shows an increase of 2% per year in favorability:

The regression equation might be:

$$Y_i = 0.76 + 0.02 * i$$

Projection for the next five years:

$$\text{Year 1: } Y_1 = 0.76 + 0.02 * 1 = 0.78 \text{ (78\%)}$$

$$\text{Year 2: } Y_2 = 0.76 + 0.02 * 2 = 0.80 \text{ (80\%)}$$

$$\text{Year 3: } Y_3 = 0.76 + 0.02 * 3 = 0.82 \text{ (82\%)}$$

$$\text{Year 4: } Y_4 = 0.76 + 0.02 * 4 = 0.84 \text{ (84\%)}$$

$$\text{Year 5: } Y_5 = 0.76 + 0.02 * 5 = 0.86 \text{ (86\%)}$$

Advocates Trends Projection

Current Data:

Proportion supporting arbitration: 77% (373 out of 482).

Regression Analysis:

Using linear regression to predict changes in the proportion of advocates supporting arbitration.

Regression Equation:

Let Y_a represent the proportion of advocates supporting arbitration at year a .

The model can be expressed as:

$$Y_a = \alpha_0 + \alpha_1 * a$$

where:

- α_0 is the intercept (current proportion).
- α_1 is the slope (rate of change per year).
- a is the number of years into the future.

Historical Data Insight:

Assuming historical trends show an annual increase of 1.5% in support:

The regression equation might be:

$$Y_a = 0.77 + 0.015 * a$$

Projection for the next five years:

$$\text{Year 1: } Y_a = 0.77 + 0.015 * 1 = 0.785 \text{ (78.5\%)}$$

$$\text{Year 2: } Y_a = 0.77 + 0.015 * 2 = 0.800 \text{ (80.0\%)}$$

$$\text{Year 3: } Y_a = 0.77 + 0.015 * 3 = 0.815 \text{ (81.5\%)}$$

$$\text{Year 4: } Y_a = 0.77 + 0.015 * 4 = 0.830 \text{ (83.0\%)}$$

$$\text{Year 5: } Y_a = 0.77 + 0.015 * 5 = 0.845 \text{ (84.5\%)}$$

These projections indicate a steady increase in the proportion of advocates supporting arbitration, reaching up to 84.5% in five years.

Based on the regression analysis, both industries and advocates in Paschim Bardhaman are expected to show an increasing preference for arbitration in technology transfer agreements. For industries, the proportion favoring arbitration is projected to rise to 86% over the next five years, while for advocates,

the support is expected to increase to 84.5%. These trends reflect a growing recognition of arbitration's benefits and its anticipated role in resolving disputes more effectively in the future.

Findings

From this research study, several observations came up asking the reasons behind the liking and adaptability of industry stakeholders and advocates towards arbitration in technology transfer agreements. The industries that supported the inclusion of arbitration clauses and sections in their agreements commonly inclined the merits of arbitration such as its efficient and professional competence. Many of these industries are included in crucial biotech projects and research where disputes mostly involve complex technical know-how that traditional courts may not undertake effectively. The need for a faster resolution and the potential to appoint arbitrators with required technical knowledge were selecting factors persuading their preference for arbitration. Moreover, the secrecy aspect of arbitration approached these industries, as it helps preserve sensitive trade secrets and proprietary information.

Conversely, the industries that opposed including arbitration clauses generally showed concerns about the inherent costs and lawful recognition of arbitration. Some industries were worried of the potential expenses related with arbitration compared to traditional litigation or questioned whether arbitration would be as credible in assuring compliance with the problem-solving approach. This skepticism could stem from a lack of familiarity with arbitration procedures or previous experiences with arbitration that may not have met their expectations. In contrast, advocates who voted for arbitration generally highlighted its benefits in handling critical conflicts and preserving secrecy, keeping hand in hand with the industries' need for unique dispute resolution. However, those who were against the arbitration mostly pointed out worries regarding the inherent drawbacks of arbitration in guaranteeing satisfactory solutions and its perceived rigidity in addressing procedural issues. Hence, these observations show a nuanced understanding of how practical approaches and prior experiences mould opinions toward arbitration among both industry stakeholders and legal professionals.

Conclusion

The study emphasizes the significant promise of arbitration as a guaranteed approach for resolving disputes in biotech-related technology transfer agreements within Paschim Bardhaman. The survey reflects that 76% of industry participants advocate for the inclusion of arbitration clauses in their agreements, citing the efficiency and unique nature of arbitration as its main merits. Likewise, 77% of proponents endorse incorporating arbitration into licensing agreements, demonstrating a strong consensus on its benefits. However, the actual adoption of arbitration clauses remains low, with only 8% of industries having implemented such clauses. To cover this distance, it is necessary to raise consciousness among

industry stakeholders and provide targeted training for legal professionals. Furthermore, setting up of regional arbitration institutions and approaching government incentives could further elevate the use of arbitration. By accepting these measures, Paschim Bardhaman can undergo a more supportive environment for biotech innovation. It ensures conflicts that are resolved more economically and effectively. Aligning practice with preference of Arbitration clause in technology transfer agreements will not only benefit the local industrial and legal sectors but also strengthen the framework for managing biotech-related disputes.

Recommendations

This research study recommends the following points as follows:-

- (i) To promote consciousness among industry stakeholders about the benefits of arbitration and inclusion of arbitration clauses into contracts.
- (ii) To organize targeted workshops, seminars, and collaborations with arbitration foundations and institutions.
- (iii) To conduct unique training programs for legal practitioners.
- (iv) To aim on providing skills in drafting effective arbitration clauses and directing arbitration proceedings, that will support the legal structure and procedural aspects.
- (v) To provide indispensable Institutional support.
- (vi) To encourage public-private partnerships to develop arbitration infrastructure and promote best practices.